M.A. MASS COMMUNICATION
1st SEMESTER

MSM-502

COMMUNICATIONS AND INFORMATION TECHNOLOGY

Centre for Distance and Online Education
Guru Jambheshwar University of Science & Technology, HISAR-125001

SUBJECT: COMMUNICATION & INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 1	VETTER: PROF MANOJ DAYAL
INTRODUCTION: ICT, INFORMATION LITERACY AND DIGITAL LITERACY	

STRUCTURE

1.0 LEARNING OBJECTIVES

After go through this lesson you will be able to:

- Understand the concept communication information technology.
- Know about the digital communication tools on interpersonal communication.
- To explore the basics of information literacy, digital literacy and meta literacy

1.1 INTRODUCTION

ICT stands for Information and Communication Technology and is a huge range of technologies used in processing, creation, management, distribution and utilization of

information. The scope of the field covers arrays of technologies like computers and smartphones, networks, and services like internet and telecommunication systems. In today's world ICT is crucial as it enhances the flow and arrangements of the information in various sectors such as education, business sector and the health sector. Since ICT always progresses, ICT also contributes to improved effectiveness as well as interaction since individuals are able to interact without much effort in the digital environment. In addition, it helps to bridge the communication divides and act as an effective enabler of information connections between individuals and organisations.

When beginning a career, many young people pursue professional success at the intersection that is IT; they solve challenging problems at work. Such activities include not only experimentation and analysis but also a skill that is one of the most important ones – presentation of the results. It is important to assist students in mastering relations between individuals, procedures and characteristics of information technology: hardware and software. It leads to further enquiry, as attention is drawn from pure Infrastructure Technology concern to Infrastructure Technology utilization complexities. Students understand that success means making conscious decisions on the application of complex IT technologies where appropriate for particular activities, and being able to explain their actions and decisions on paper as well as orally.

ICT is the use of technology in communication technology, computation, and information processing equipment and systems to process, store, transmit, and retrieve information. It includes such technologies as those related to the physical components like computers and other connected devices, all products associated with hardware like operating systems, networking such as telecommunication and different sorts of media. ICT aims to provide unobstructed communication and exchange of data between and among users, companies, and institutions and as a result, increase functionality.

1.2 TYPES OF ICT'S

ICT can be categorized into several types based on its applications and functionalities:

Telecommunications: This ranges from the conventional modes of communication technology to the modern ones; it entails such equipment as telephones, several mobile networks, and sophisticated satellite communication networks. ICT get to have more importance in helping people communicate across distances and facilitate the kind of interactions that would otherwise may not be very easy in the current world economy.

Broadcast Media: Technologies have been created truly to improve means and allowing the smooth flow of voice and video, meaning both TV and radio broadcasts. They are essential tools of communication and convey information in today's world which is ever so active and fast. This topic has drastically changed the way people perceive and interact with news, entertainment as well as contents related to education.

Computing Systems: These comprise many critical peripheral devices like computers and other computers with high server capability as well as various other peripherals, efficient software products and high-end operating system, which can efficiently sort, analyze, and manage data in various environments and systems.

Networking: Networking means the inter connection of different devices for the exchange of data and information. This covers wired technologies like Ethernet as well as diverse wireless technologies like wireless fidelity (Wi-Fi) that inevitably facilitate broad accessibility and convenience in today's communication practices.

Internet Services: Altogether, there are many toolkits that greatly facilitate the conditions for smooth and fluent continuity of online communication as well as the exchange of information processes. Such examples include well-known social platforms as well as reliable and secure e-mailing tools, and versatile and highly effective cloud solutions that enhance cooperation and provide multiple choices of data storage.

Emerging Technologies: Technologies such as the use of artificial intelligence (AI), virtual reality (VR), the Internet of Things (IoT) into Information and Communication Technology (ICT) systems are increasingly becoming integrated. It is revolutionizing how people interface with many digital spaces and, concurrently, improving users' experiences across many domains. Such extraordinary improvements are not only influencing established economic sectors but are also defining fresh promising specialized areas and enhancing productivity. Due to such advanced tools, both organisations and parties involved can promote diverse forms of marketing and interaction that can help them foster new problem-solving approaches to many challenges that result in enhanced organisational performance within the dynamic digital environment.

1.2.1 COMPONENTS OF ICT

Hardware: It is the physical tools required to support communication process. Illustrations of such equipment include computers which they undertake numerous

activities; mobile phones which make communication on the go possible; routers through which networks of computers are connected; and servers which provide services to devices and networks that require to connect and function.

Software: It can be described as a group of programs that are intended to be operated on the different Hardware components with the aim of accomplished a number of distinct operations. This broad group of G and P includes operating systems that control the computer hardware and on which applications run, as well as the applications which help the user in need in one or another way. Moreover and more importantly, middleware refer to the software that supports the integration and communication of various systems where data has to pass through in order to support the operations of various computing environments in the right way.

Data: Data is defined as the information that undergoes utilization at the user-side or systems level for generating useful and relevant results. It is crucial for drawing knowledge and for decision making. In general, without data one analytical procedure and decision making are limited and so their impact to different operations would also be severe.

Procedures: Official procedures or frameworks meticulously developed to enable users in the efficient use of ICT gadgets or facilities. This includes detailed user guides, general and specific procedural frameworks and references to activities that offer the best practice for operation and ease of use.

Networks: Networks are an essential component in the interaction of a number of devices that are present in today's society. This connectivity includes fixed network which includes Local Area Network (LANs), and the Wireless Network commonly known as WiFi networks. These types of networks act a critical role in supporting the interaction as well as data transfer between the users and devices in different places.

Communication Protocols: These are basic standard that clearly specify the various format of passing data over different networks. Their main function is to guarantee the proper integration and mutual connection of diverse systems, so that these could be effectively interconnected and could enjoy proper communication.

1.3 INTRODUCTION: INFORMATION LITERACY

Information literacy includes a crucial and irreplaceable body of knowledge and practice that only enriches individuals with a set of skills to find various information, evaluate it, and use it where and when needed. These fundamental skills allow individuals to

meet the incredible flood of information we experience today, offering them the skills to determine the validity of sources, decide on the credibility of an article or piece of information, and apply that knowledge to something else in the proper scope or position. This competency is a growing factor and of great importance especially given that information is produced at an alarming rate and impacts decision and knowledge within daily life. However, with the increase of data being available in the future, it becomes critical for people to possess the above skills.

Importance:

Information literacy therefore entails the ability to specify when information is sought, amassed, evaluated as well as applied proficiently. The skill, which I have focused on, has emerged as critically important and absolutely indispensable in the context of an information abundance and constant change when individuals find themselves in front of a wide range of information resources. These sources may be traditional libraries, the vast internet, and many media sources, all of which provide an abundance of data and opinions. It is therefore not only relevant but is rather essential achievable given a capacity to read between the lines and identify credible sources amongst this flood of information.

1.3.1 SKILLS ASSOCIATED WITH INFORMATION LITERACY

The skills associated with information literacy includes:

Critical Thinking: It is not only an assessment of the data collected but also the evaluation of the trustworthiness of the credibility, genuineness of the sources and the degree of accuracy of such pieces of information, which we come across daily. It is crucial for one to undertake a logical and systematic consideration of the material and arguments that are given in those various sources so that we are in a position to separate between fact and conjecture. This process is essential especially in the light of existing increased information availability.

Research Skills: It is a systematic identification, accrual, and integration of germane as well as beneficial information from a wide array of sites, multiple locations, and extensive databases to enhance the extensive quality and scope of research processes. Through the use of these techniques, the researchers are in a position to come up with efficient ways conducting their data collection process so that findings made will be meaningful in the various fields.

Ethical Use: Acknowledging and understanding the great role that is provided by proper and appropriate use of information is important. This includes a diverse list of significant concerns in plagiarism, the copyrights issues, and the ethical question concerning sharing of information. These guidelines should be followed to the letter to prevent dishonesty in academia and professional practice, to encourage mutual trust between students, as well as professionals and merits of professionalism and fairness in all professions.

1.3.2 COMPONENTS OF INFORMATION LITERACY

These are the components of Information Literacy:

1. Identify: The first step would lie in acknowledging and identifying this information need as complex, nuanced and to be as comprehensively specific about it as possible. This process encompasses understanding the scope of what specific kinds of information are required to solve a given question or a current challenging issue appropriately and accurately. For this reason, it is crucial to make sure that all the critical data is gathered to facilitate an analysis of its content.
2. **Find:** It is the core competency of sourcing and searching as well as using and applying diverse information efficiently. This entails using important tools including public and academic libraries, various database systems, and a lot of other online facilities where huge amount of relevant data. Developing this ability enables a person to converge on findings relevant and appropriate resources in the necessary information space.
3. **Evaluate:** It is a process of critically appraising and analyzing the quality of the information located in different settings. This includes segregating the different type of sources, which may be primary sources that give expanded documentation or primary substantiation; or they may be secondary sources that give an affiliation or evaluation of theses substantiation. In order to avoid making mistakes in gathering the sources, one has to possess the knowledge on the difference between the sources.
4. **Apply:** Apportionment and purposeful application of the gathered and well selected information increases the efficiency of accomplishing a certain goal. Also, it helps out in the achievement of certain goals and objectives; moreover it has a central role in providing and enhancing information on the decision-making process.
5. **Acknowledge:** That is why the ethical use of information shall be clear and shall be practiced day by day through citing the sources. This encompasses understanding and valuing the legal and socio- economic consequences that relate to the usage of

information in different settings and circumstances. Recognizing people is not only a good way of building trust and business integrity but is also a way of helping to create a society that is better informed and responsible.

- **Impact on Lifelong Learning**

Information literacy is not just for academic success; it is one of the attributes specially relevant to different stages of the human life. That way, it enables them to take decisions that have far-reaching consequences on their health, education and professional career – in effect determining the course of their future. Aside from promoting the value of lifelong learning, this skill has the added advantage of allowing the effective application of new information technologies, new methodologies, and new knowledge in particular settings, insisting always on principles of learning in the present globally digitized knowledge economy.

This way, individuals prepare themselves for the overwhelming consumption of the informational environment, while transforming the receiving of information into a harmonious game. , they are gradually equipped for focusing on the further enhancement and constant enhancement of their private as well as occupational development. This makes them stay relevant and competent in a world that is under constant transformation-challenge and opportunity. As we may deduce, information literacy is crucial for anyone who wants to survive and succeed in society because it provides a constant and exhilarating interaction with the existing and emergent rip current of society.

1.4 INTRODUCTION: DIGITAL LITERACY

Digital literacy is the positive and evaluative utilisation of different media technologies for the purposes of acquiring information, communicating and achieving everyday life solutions. This entails computer literacy, which entails skills in the retrieval, critical evaluation, storage, processing, effective display and transmission of a range of forms of information in a meaningful way using information communication technology (ICT).

Digital literacy means important competencies and profound focus needed to apprehend, critically assess, and interact in various forms of communication mediated by various ICT. This includes an array of skills, any of which is significant in the contemporary world which is greatly characterized by the use of technology in almost all our activities in our day to day lives and other activities. Achieving mastery of learning how to incorporate the advanced technologies appropriately is important for effective participation in the contemporary society and for developing healthy and effective interpersonal and workplace relationships. Despite

the fact that the vast majority of these tools are becoming increasingly accessible and user friendly, it has never been more important for those interested in navigating this complex global environment to remain both knowledgeable and proficient.

Differentiation between accurate and fake information, combined with the need to reliably convey information through different media and use multiple software tools. While learning or working make digital literacy not only an asset, but rather a requirement in today's society. Such rapid advancement in technology calls for updating skills, particularly in situations where skills needed are numerous, and a person must be ready to solve a number of technological problems as well as embrace numerous technological opportunities as they present themselves.

1.4.1 CHARACTERISTIC OF DIGITAL LITERACY

1. Finding Information: Specifically, an increasing amount of significance is being placed on the primary competency of efficiently finding relevant information through a variety of digital tools. Which includes search programmes, niche databases, and other web-based utilities. It is crucial in many fields to distinguish useful information among the constantly growing number of posts.
2. **Evaluating Information:** The credibility and relevance of the information shared using digital technologies need to be assessed in order to ensure that information shared with the public is trustworthy and useful in the different uses anticipated. This comprehensive assessment process is basic to avoid presenting wrong or irrelevant information as a basis in decision-making. When analysing material, one realises its relevance and credibility when used IN different scenarios that involve decision-making based on available content.
3. **Creating Content:** Delivering timely, relevant, interesting, and high-quality new media content in a variety of forms, for example through crafting informative and highly relevant blog posts or creating appealing and intriguing videos, creating visually stimulating and appealing content that will keep the target audience both interested and informed throughout the overall entirety of their experience of encountering that piece of content.
4. **Communicating:** This is especially important in today's tremendously connected world, sharing and disseminating a vast amount of valuable information across multiple digital

formats is crucial. This process involves the use of e-mail together with all forms of social media as well as other enhancing communication enablers enabling full communication as well as accessibility by all the stakeholders involved. Optimizing the use of such resources can greatly enhance event participation rates and the amount of information being shared by participants.

5. **Understanding Technology:** It is therefore important for users to be very conversant with the different utensils and gadgets that are used in the search and interaction of the diverse vast world of content. This also provides for devices such as mobile phones, tablets, and numerous types of applications intended for interaction with the content of the Internet. Knowledge of these different devices and their operations increases the efficiency of appreciating available information many folds, making individuals appreciate what is being presented to them better. From that viewpoint, mastering these tools enable the user to move through and within cyberspace more effectively.

1.5 CHECK YOUR PROGRESS

Multiple Choice Questions (MCQs)

1. **What does ICT stand for?**
   A) Information and Communication Technology
   B) Internet and Computer Technology
   C) Information and Computing Techniques
   D) Integrated Communication Tools
2. **Which of the following is NOT a type of ICT?**
   A) Telecommunications
   B) Broadcast Media
   C) Traditional Print Media
   D) Internet Services
3. **What is a key component of digital literacy?**
   A) Memorizing facts
   B) Understanding how to use digital technologies effectively
   C) Writing essays
   D) Reading printed materials
4. **Which of the following skills is essential for information literacy?**
   A) Critical Thinking
   B) Speed Reading
   C) Graphic Design
   D) Public Speaking

What role do emerging technologies like AI and IoT play in ICT?
   A) They complicate communication.
   B) They have no significant impact.
   C) They enhance user experiences and create new opportunities.
   D) They are outdated technologies.

1.6 SUMMERY

ICT as an acronym for Information Communication Technology is a concept that is identified with the use of technology resources, hardware, software and systems for the management and processing of Information. This can be anything from basic phones up to data networks and encompasses a very important part of peoples daily activities, both business and private.

Information literacy is the defined as an individual's capacity to find, assess, utilize and share the knowledge. It requires use of knowledge in analysing issues and making decisions, or the process of abstract thought, reasoning, and convincing. Digital literacy is a subset of information literacy, which deals with how to use the available information in the digital environment properly.

Digital literacy, on the other hand is defined as the capability to utilise digital technologies, as well as understand and comprehend technologies of digital communication and interaction, create and consume digital information. Armed with several competencies like major competencies in the area of mainstream ICT competencies—such as typing, file management, and use of computers, application competencies that entail using tools and applications for employability, and relational competencies which entail being able to communicate and work together in an online platform. Computer science improves the digital competence of people who learn it because it is crucial to function safely and purposefully in a modern world that is rapidly becoming digital.

Thus, ICT, information and digital literacy are the interrelated concepts to which we see a growing demand in the context of a more digital and informational society. Collectively, they empower individuals to search, assess, employ and share information using IT tools and feel comfortable to face today's multifaceted digital environment.

1.7 KEYWORDS

1. **Information and Communication Technology (ICT):** A vast array of solutions that makes information gainful to be accessed, stored, transmitted and processed using equipment including, computers, telephone handsets, the internet and the likes.

2. **Digital Literacy**: The abilities and understanding needed to participate in computing technologies to assess and interact with different types of media communication critical for functioning in today's society.

3. **Information Literacy:** The skills of identifying when information is required and of acquiring, assessing and applying this information appropriately and consistently, are important for decision-making at work.

5. **Networking:** The process of linking a number of devices used to communicate data and information through wired structures (for instance, Ethernet) and wireless standards (for instance, Wi-Fi).

6. **Broadcast Media:** Technologies that affect the conveyance of audiovisual information such as television and radio being very central in the dissemination of information.

7. **Emerging Technologies**: Technologies like AI and VR, as well as IoT that change the way people engage digital spaces.

8. **Critical Thinking**: The ability to utilise the available information and determine the authenticity of a source of knowledge in a situation where there are variety of sources and comprise of fact and opinion.

9. **Data:** Data that is used by users and systems for analysis in order to make and support decisions; crucial in business and multiple other areas.

1.8 SELF ASSESSMENT QUESTIONS

1. What do you understand by Information and Communication Technology (ICT) ?
2. Examine your own proficiency with digital literacy and write about the main challenges using media.
3. Explain why information literacy has a crucial role in your life and in learning process.
4. Can you provide an example of a recent event in which you made an assessment of the accuracy of data?
5. Evaluate what impact new ICT technologies, including IoThing and artificial intelligence, might have on future education or career.

1.9 ANSWER TO CHECK YOUR PROGRESS

1. **Answer:** A) Information and Communication Technology
2. **Answer:** C) Traditional Print Media
3. **Answer:** B) Understanding how to use digital technologies effectively
4. **Answer:** A) Critical Thinking
5. **Answer:** C) They enhance user experiences and create new opportunities.

1.10 SUGGESTED READINGS

Digital Literacy for Dummies by Faithe Wempen

Information Literacy: A User's Guide by Paul G. Zurkowski

Emerging Technologies and Their Impact on Society by M. J. Kearns

Information and Communication Technology: A Comprehensive Introduction by R. S. Pressman

SUBJECT: COMMUNICATION & INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 2	VETTER: PROF MANOJ DAYAL
INTRODUCTION: META LITERACY AND MEDIA LITERACY	

STRUCTURE

1.0 LEARNING OBJECTIVES

- Enhancing Critical Thinking: Students will be able to identify bias of different information sources.
- Fostering Collaboration Skills: Innovate by encouraging minority representation to create knowledge with the goal of sharing it.
- Promoting Metacognitive Awareness: Being flexible; Contemplate on the classroom learning activities to make the person more effective and adaptive.
- Encouraging Active Digital Participation: It is better to interact with the information instead of just receiving it.

1.1 INTRODUCTION TO META LITERACY

In the digital age, it is not unusual for students to enter higher education with distinct skills to search and retrieve information. When asked where or how they acquired these skills, research shows that many students, often, pinpoint their teachers. Thus, teachers are the pivotal players when it comes to information retrieval knowledge and skills. Meta-literacy represents an innovative pedagogical framework designed to encourage high school students to critically reflect upon their online behaviours, transcending the simplistic approach of merely acquiring a URL for future assignments.

Many scholars and educators see the need to challenge traditional, basic-literacy models and to create a more adaptive, responsive framework for media exploration that reflects the zapping, zipping nature of interaction with media. Meta-literacy addresses contemporary challenges and concerns related to digital and media literacy along with understandings related to openness, collaboration, and information production in evolving environments.

1.1.1 DEFINING META LITERACY

Meta literacy was first introduced in 2006 in an outline for a research proposal addressing how instructional strategies affect students' cognitive and affective responses to object manipulations, digital subject matter, and interactive, information-age literacies. Meta literacy highlights its value in clarifying ambiguities faced by students as they navigate the complex, communicative nature of digital information. It serves as a self-referential skill needed to engage with fluid information environments and represents a new form of literacy in the digital age. While the latter may be debatable, the former is not marked sufficiently clearly into its usefulness for education and does not make consideration of approaches focusing on educational practices or for educators who may be inexperienced in technology.

Meta literacy advances on top of the traditional concept of literacy by also including critical analysis, responsible usage and creation of information collaboratively in digital platforms. It focuses on the pro-active manipulation and control of the learning process and assists a learner in evaluating how they learn. As defined by Tom Mackey and Trudi Jacobson, meta literacy encompasses other types of literacy namely Media, digital and visual. This integration helps in making the users to become engaged, take part in creating or sharing content in the several social networks and social media rather than just being loyal followers

or users. In this manner, meta literacy helps to develop properties that improve individual ability to live and work in the information society.

Media literacy and meta literacy share some significant characteristics mainly in combating and encouraging the use of information literacy and participatory culture. Media literacy for example helps in the kind of thinking one can employ while analysing, news shared among peers on the other hand, meta literacy on the other hand is helpful in the skills used when dealing with media while on specific behaving changing platforms. They are also part of info and media literacy, meta highlighting higher processing for efficient content searching. Media literacy is well established in K-12 curriculums; however, meta literacy has a different focus. It probably did this to solve information overload problems in new digital media while maintaining literacy as the dominant skill. Media literacy involves ethical information use and critical consumption on which meta literacy is based. Meta literacy focuses on constructive engagement in constructing the digital community and calls out on information distortion while media literacy focuses on critiquing consumption. In meta literacy, both consumers and creators take responsibility, incorporating critique and evaluation for understanding their roles within information structures. Media literacy aims to cultivate active media culture contributors, while meta literacy integrates economics, culture, and perception to convert information into knowledge.

1.1.2 BASIC ELEMENTS META LITERACY

Critical thinking: The critically important and essential ability to effectively analyse, thoroughly evaluate, and accurately discern various information sources for potential bias, reliability, and overall credibility to form informed opinions.

Critical thinking can be used to identify the intended message and biases present in media. To what extent should messages not be considered as individually founded views and cultural presentations, but as pieces of propaganda with an intended purpose or narrow range of viewpoints? Could it be part of said message to make a general impression come across? What other models or formats are being used that can present a message in a positive light? What underlying determinants are assumed to be instilled in this representation? Implicit information or responsibility of and freedom within the media to influence or shape society has been addressed by various theorists.

Collaboration: Engaging and Collaborating Effectively with a Wide Range of Diverse Individuals and Groups in Significant and Meaningful Efforts to Produce, Exchange, and Share Knowledge Collectively for Greater Impact and Transformation in Various Contexts.

In the collaborative information environment of today's world, students are called upon to produce knowledge by engaging in the behaviours that have been associated with metal literacy. Collaboration can take place within a physical space, across time and space, or perhaps in a social media space. This collaborative approach to engagement is akin to the application of the collaborative communication and learning model to understand how online digital media engage citizens. As a foundational element of this communication and learning model, collaboration draws on similarities between the goals of meta literacy and media education. Pioneers of media literacy used observation, description, and analysis in communication research to devise media curricula. They believed that media analysis would empower students to analyse and evaluate media images, messages, and techniques.

Metacognition: Reflecting deeply and critically on one's own unique personal learning processes to significantly enhance understanding, adaptability, and effectiveness in a variety of diverse contexts.

Metacognition is the active planning, monitoring, and regulating of thinking to reach specific mental objectives. In an educational setting, metacognition may involve reflecting on one's own learning processes to effectively understand and adapt to changing task specifications. The affective processes involved in metacognition include challenging oneself to reach cognitive goals, maintaining interest in task demands, managing the anxiety associated with a challenge, and adaptive coping during periods of performance difficulty. Knowing how attentional allocation and the maintenance of motivational goals relate to metacognitive awareness provides another facet on how time on-task and metacognitive analysis complement each other in creating successful learning experiences.

Regular ruminative self-questioning like "What am I learning?", "Am I understanding the topic?", or "Do I need to ask for help?" spurs dialogues to increase clarity and reinforce learning experiences. Metacognitive abilities are central to effectively solving problems and to learning how to focus on real-life challenges by employing self-regulatory strategies.

Digital Participation: Utilizing emerging and innovative technologies to actively engage with dynamic content rather than merely passively consuming or observing it.

Digital participation involves all levels of digital literacy and engagement with technology that can exist. This includes users of technology who may not have the expertise necessary to be considered digitally literate. By considering digital participation largely behaviourally as opposed to linguistically, emphasis is placed on the consumption of sophisticated and engaging media. More focus is placed on how users see and experience technology, rather than on users' sometimes lacking informational and critical abilities. Libraries can play a key role in increasing the digital participation of users who are sometimes content just to passively consume. The library offers multi-faceted and theoretically grounded programming to help people see technology in very real ways. It is about the will or actual desire to engage with content actively, rather than passively consume it.

1.1.3 PRACTICAL APPLICATIONS OF META LITERACY

Meta literacy can be applied in various contexts:

Education: Enhancing teaching methods by incorporating collaborative projects that require critical evaluation of sources.

Non-traditional educators are challenging students to improve their critical thinking skills by creating new ways of fostering this knowledge and these abilities. This fulfils one of the overarching goals of many academic disciplines engaging with a larger social imperative. Historically, knowledge creation was the domain of discipline-specific coursework or library and information science, but a new cross-discipline approach finds scholars in a variety of fields exploring the particularities of their community engagement that can help students identify relevant resources and assess the quality of what they discover. Perhaps even more importantly, content creation projects are engaging students in the production of information.

Professional Development: Training individuals to navigate complex information landscapes effectively.

Professional development is a critical component to ensuring that the broad-based skills needed to participate in this lifelong learning are well-developed and honed over time. Professional development is not simply about assisting kids; it is about training individuals to navigate complex information landscapes effectively. New skills are only one part of the necessary mappings. Media literacy and information literacy are crucial competences for personal development, active citizenship, social inclusion, and employment. Citizens require information literacy competences for full participation in a democratic society. In fact, these

competences are now central to community media access projects in part to replenish the weakening fourth estate.

Community Engagement: Encouraging citizens to actively participate in discussions around media and information sharing.

Develop participatory skills: participating in public dialogues, using multiple messages and voices in a dialogue, commanding a democratically plural public communication model, understanding ethical dilemmas and the need for recreational doses of persuasion, and participating at the societal level by making informed and deliberate choices. All these abilities are realm-specific and need to change and develop as society requires. At the family level, democratic pluralism and other communication skills are mainly developed in consultation with the family. After socializing into society, the competence obtained in the family circles appears to be a sound territory on which to manage consumption and connectedness to media.

1.1.4 THE IMPORTANCE OF META LITERACY IN THE DIGITAL AGE

Meta literacy transforms what it means to be a literate citizen in contemporary society. The digital natives are growing up in a media and computer-saturated world. Critical thinking and traditional media literacy are more important than ever; yet in today's fast-paced, real-time communications and information environment, traditional media literacy tools are no longer enough. Meta literacy is an extension of media literacy and offers a model of critical thinking about literacy. Meta literacy fosters critical engagement with digital information, which is essential to responsible decision-making, informed political participation, effective citizenship, and competitive skills in the global economy.

Meta literate citizens recognize that people are as important as technology and tools in creating, sustaining, and using digital information. With an understanding of the knowledge construction of the digital age, they are savvy interrogators and consumers of a persuasiveness enhanced by customizable digital media. Equipped with research strategies, analysis tools, critical self-reflection, and the ability to effectively support their own knowledge, meta literate citizens are informed users and creators of digital information. They progress from mere consumers to shapers and stewards of digital artifacts, and from entities that ‘owe’ it to others by creating and /or curation and sharing of the content. Consequently,

meta literacy directs the information professions including librarianship towards comprehending digital media by people as users, not gorging info structures.

1.2 INTRODUCTION TO MEDIA LITERACY

Media literacy means the ability to analyse and comprehend media products and, therefore, form a wise society. The societies in the contemporary world are flooded with different kinds of media, such as media news, social media, television, movies and commercials. In this new world, people need to know the principles that will help to rule it: Media Literacy concepts. It entails awareness of the methods and messages of media, analysis of purpose and impact of media, and cognition of role assumed by various media as far as perception of reality is concerned.

In order to be media geometrically literate, one needs to start doubting the messages which are being delivered, search for more angles and orient in the purpose behind the message. Media literacy is therefore about assisting consumers to be competent in their use of the media and ultimately make an informed decision, thus getting meaning from the world and contributing to a better society. People should be educated on the media so that the next generation people are appropriately prepared to go into a world where media becomes a dominant influence for the formation of opinion.

1.2.1 DEFINING MEDIA LITERACY

Media literacy encompasses the capability to understand receive, assess, produce and communicator media messages. It also covers a person's ability in comprehending and analysing messages in different media content and channels including newspapers, magazines, radio, television, and internet. Consumption media is recognized as comprising critical thinking skills, rudimentary media technical know-how and interpersonal media competence. Thus, media literacy represents the act of equipping individuals with the prerequisites for turning information into information, to be in a favourable position to form his own appropriate decision concerning the great number of ways which information is disseminated, ultimately becoming an active member of the society.

1.2.2 CHARACTERISTICS OF MEDIA LITERACY

Accessing Media: Learn how to use Media

The main characteristic of media literacy is to learn how to find and use different types of media. It is important to not only find the information, but also show others how to do it and empower them as the informed customers. Meta literacy doubts if information can be gathered in several sources that are reliable, and makes a list of conditions, what defines reliable content. Closely connected to it is media literacy which analysing different types of information stating that media literacy means the awareness of the structure, genesis, and purpose of media products. The core concern in media literacy skills is about discrimination: understanding how information is received and disseminated.

Studies on media and meta literacies analyse the design and functionality of different media types. Important industry elements include the control exerted by editors and authors over shared information, media credibility linked to consumer trust, and the platforms used for publication. The landscape of both internal and external news sources, addressing social and scientific issues relevant to brands, is also under examination.

Analysing Content: Evaluating the techniques used by media creators and the messages conveyed.

Media literacy is concerned with the analysis of content. It is the ability to access, analyse, evaluate, and communicate messages in a wide variety of forms. It is also the ability to analyse and understand the techniques used by media creators and the messages conveyed through these techniques. Critical thinking is an important part of media literacy. When teachers and students are "media literate," they can read, write, listen, and view media messages from print, radio, television, and film – critically and with understanding.

Media literacy applies a broad range of critical thinking skills to the media, which includes the ability and willingness to ask questions. Media literacy also has an anthropological and cultural approach by educating and informing students on how media messages are prepared and spread. Its ability to make judgments about what media products and services will affect choices and behaviour is very important in classifying media literacy. Moreover, it develops awareness for recognizing and solving problems with individuals. The reflection and knowledge applied by the good consumer of media and the interaction effect of the content of the media-on-media studies help comprehend the channels and motivations of the media, which are all good indicators of media literacy.

Creating Media: Developing skills to produce media content responsibly.

Creating Media: Developing skills to produce media content responsibly. Participants learn how to use various media platforms and develop the ability to choose the appropriate media for a message. The goal of media literacy is not only to understand content but also to be able to recognize bias and avoid ethical grey areas when creating one's own digital texts. New media affects all aspects of communication, and those who only consume content risk becoming passive consumers without the ability to follow shifts and understand evolving biases. Traditional versus New Literacy Skills One problem with teaching media literacy in a traditional manner is that the cognitive and practical skills needed for production are largely absent. Literacy has addressed the creation of information, but little emphasis has been placed on active engagement, the increased monetization of digital spoken word and authors, or the role of the user as both creator and recipient of information in the network society, electronic documents, and user-generated content.

Participating Critically: Engaging with media in a way that promotes informed decision-making.

The digital age has transformed literacy into a metacognitive process, where media literacy encompasses critical awareness and interaction with information. This form of literacy enables individuals to understand power dynamics influenced by information and communication technologies. It involves competencies that help audiences critically engage with media systems, analysing messages and gaining insights into media production. Media literacy fosters self-assessment of personal values related to media consumption. With proper education, students can effectively question and evaluate media content, leading to more nuanced responses to the media they encounter. This critical engagement promotes a deeper understanding of the media landscape.

1.2.3 PRACTICAL APPLICATIONS OF MEDIA LITERACY

Media literacy can be applied through:

Educational Programs: Teaching students how to critically engage with media from a young age.

Since mass media and new media play a central role in the everyday lives of children and young people, educational programs promoting media literacy are more necessary than ever. Media literacy skills are not only important for interpreting and critically analysing media content. Educating students on media literacy and providing them with the resources to

become media literate is also important in the sense of empowering students to propose their own media content. This enables students to become active participants in media, thus reducing dependency on different media sources and the bias they introduce into media content.

One of the key elements of teaching media literacy in the educational environment is the production and design of media content in terms of different media products, such as presentations, up to – what is increasingly common in schools – video. In this sense, media literacy is not only related to teachers educating their students in the proper interpretation of those media but is also related to empowering students to propose their own content. This text presents some problems and concepts related to the preparation of the educational program that would enable students to develop their media products.

Workshops for Adults:

Providing resources for adults to enhance their understanding of media influences. Educators interested in sharing information about media literacy, whether as a multi-session workshop or in an abbreviated one-shot presentation, have a variety of resources to which they can turn. Each of these resources provides a basic format as well as suggested activities so that the time spent solving the riddle of our influences is maximized. The most difficult part for the instructor preparing for a media literacy workshop can be deciding upon a resource or set of resources to use. Before delving into the range of resources that are available, perhaps it would be helpful first to consider how adults can be supported in their quest to understand the many influences that shape our daily lives.

Instructing adults to read print materials or watch videos or teaching them from speakers who are leading workshops is also valuable starts for teachers. One of the important things that the participants learn is that the process of reviewing available resources facilitates the process of evaluating and critiquing them. This way, the notes and analyses of the visited and revisited resources help to apply what has been learned. An integrated media literacy approach, common in underdeveloped countries, enriches comprehension: students read articles, watch segments on TV, listen to broadcasts, and undertake some online searches. When incorporating massive helpful resources, also increase the usage of several kinds of technologies and analyse verbally and non-verbally conveyed messages.

Community Initiatives:

Raising consciousness concerning false information and credible media consumption fostering. Over the past few years, the emergence of fake news and information has also incited many people to participate actively, located in various parts to combat the problems. They can be depended on to raise awareness on the community on the need to differentiate between good and fake informative content and to encourage proper use of media content. What is more, there are several similar platforms and initiatives originating from different corners of the web, and it has been very difficult to choose which of them to address in this narrative and which ones to pass on without any remarks.

Fake news should be defined as any content which is false and is intended to mislead and cause harm and result in changes in public opinion. Misinformation, therefore, is not all fallacious although it can be and is not likely to give a whole picture of what is occurring. Depending on the source it can be motivated by populism, ideology, money, or malice. Hence, these purposes in turn pose different possibilities and challenges of fighting fake news. Competencies in producing knowledge about disinformation, fake news, and trust include critical evaluation of media and knowledge sources as well as utilising and sharing information responsibly.

1.2.4 THE IMPORTANCE OF MEDIA LITERACY IN THE DIGITAL AGE

Media literacy enables individuals to sort information in the current flow of information within the media. It develops perception skills required in understanding media messages and appreciate the socio-political and economic realities. Thus, when embracing the advances in technology, media literacy is protection of an individual from fakes and discussion of ideas. The dynamic nature of information creation and sharing is advantageous to learners of all ages as they need to adopt skills and learn about themselves to perform well in the specified environment. Symbolic and technical literacy have been evolved to social media and digital media and shifted to media, news, and digital literacy; however, meta literacy is being considered as the key framework. The tools for Information processing are also in the transformation as other activities such as mapping and web search are common to various disciplines. To get an idea of the extent of the change that has occurred, one need only consider how the ubiquity of new media has moved social existence online, which of course translates to correspondingly greater dependence on various information systems in the realms of community, work, and citizenship. In the meantime, recognizing the magnitude of information entering our lives through various media is not enough. We must become

consumers, producers, and users of all those media not as if they are separate entities but as part of a large information ecosystem. Such a goal only becomes more important as more and more people become dependent on digital modes of communication. It is important to understand how new media function and what types of assumptions go into different ways of creating and distributing messages. By learning and practicing media literacy, we enable ourselves to understand the programmed messages and the people and organizations that create and disseminate them, and upon their knowledge and techniques. Indeed, eventual critical users produce these media and messages, which help educators design a curriculum that fosters efficiency and digital empowerment.

1.3 SUMMARY

Meta literacy may be described, as an emerging pedagogy, which aims to heighten the students' meta-cognitive awareness of their behaviors as well as information searching abilities within the contexts of the new media. It makes students active in their approach to/with Web content and does not only focus on obtaining URLs for the assignments but on critically evaluating information. Meta literacy that merges media, digital, and visual literacy allows students to adopt more than the role of a consumer of information but the role of a producer.

Identification of the bias and credibility of information sources; cooperation – exchange of knowledge between different groups of people; metacognition – reflection on the learning process; and digital citizenship – active use of information technology. Organizational meta literacy has the focus to apply into the areas of education, professional development, and community health to advance the current approaches in teaching pedagogy and the capabilities to make wise decisions.

On the other hand, media literacy concerns the willingness and competence of a person in terms of reception and understanding of media products, the critical reception of media and safe use of information. The meta literacy framework could be seen as an extended version of the Awareness, Focus, and Reflection framework in that it also encourages informed citizenship, but also constructive participation in the digital communities. Lastly, such frameworks equip students for painstaking and responsible conduct of information literacy, thereby producing informed producers and managers of digital information.

1.4 CHECK YOUR PROGRESS

Check your progress with MCQ's:-

Q.1 What is the primary focus of meta literacy?

A) Acquiring URLs for assignments

B) Critical reflection on online behaviors

C) Passive consumption of media

D) Memorizing information

Q.2 Which of the following is a key component of media literacy?

A) Digital participation

B) Collaboration

C) Analysing media messages

D) Metacognition

Q.3 What does metacognition involve in the context of learning?

A) Consuming media passively
B) Reflecting on one's own learning processes
C) Collaborating with peers
D) Searching for information online

Q.4 How does meta literacy differ from traditional media literacy?

A) It focuses solely on ethical consumption.

B) It emphasizes critical engagement and information production.

C) It discourages collaboration among users.

D) It is less relevant in the digital age.

Q.5 What is a primary goal of teaching media literacy?

A) To create passive consumers of information

B) To enable individuals to analyse and comprehend media products

C) To limit access to various media channels

D) To discourage critical thinking skills

1.5 KEYWORDS

1**. Meta Literacy:** Understanding and critically engaging with digital information and media.

2. **Media Literacy**: Ability to analyze, evaluate, and create media content effectively.

3. **Collaboration**: Working together with others to achieve common goals or objectives.

4. **Metacognition:** Awareness and understanding of one's own thought processes and learning.

5. **Digital Participation:** Actively engaging with digital content rather than passively consuming it.

6. **Information Retrieval**: The process of obtaining information from various sources effectively.

7. **Bias**: A tendency to favor one perspective over another, affecting objectivity.

8. **Credibility:** The quality of being trusted and believed in; reliability of information.

9. **Ethical Consumption:** Making informed choices about media use based on moral considerations.

1.6 SELF-ASSESSMENT QUESTIONS

Q.1 Discuss the significance of meta literacy in the context of digital education.

Q.2 Compare and contrast meta literacy and media literacy.

Q.3 Analyze the role of collaboration in developing meta literacy skills.

Q.4 Evaluate the importance of metacognition in learning processes.

Q.5 Examine the impact of digital participation on media consumption behaviors.

1.6 ANSWERS TO CHECK YOUR PROGRESS

Answer 1: B) Critical reflection on online behaviors
Answer 2: C) Analyzing media messages
Answer 3: B) Reflecting on one's own learning processes
Answer 4: B) It emphasizes critical engagement and information production.
Answer 5: B) To enable individuals to analyze and comprehend media products

1.7 SUGGESTED READINGS

Understanding Media Literacy: A Comprehensive Guide by S. R. S. Rao
Digital Literacy in Higher Education: An Introduction by Paul Gilster
Critical Thinking in the Digital Age by Jennifer A. Moon
The Participatory Culture Handbook by Aaron Delwiche and Jennifer J. Henderson
Media Literacy: Keys to Interpreting Media Messages by Art Silverblatt and R. William McGrew

SUBJECT: COMMUNICATION & INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	**AUTHOR: DR. KUSHAM LATA**
LESSON NO.: 3	**VETTER: PROF MANOJ DAYAL**
UNDERSTANDING INFORMATION PRODUCTION, CONSUMPTION AND DISORDER	

STRUCTURE

1.0 LEARNING OBJECTIVES

After going through this lesson students will be able to:

- To understand the concept of information needs
- To know about the various types of information
- To explore the difference between Misinformation, disinformation and Malinformation

1.1 INTRODUCTION TO INFORMATION STUDIES

Overview of information dynamics and digital age literacy challenges:

The Internet has changed information consumption, production, and the way people relate to information. Information disorder, which encompasses notions of misinformation, disinformation, mal-information, and 'fake news', poses a challenge that affects different agents connected to information as it is consumed, produced, and shared. Many people perform multiple roles, sometimes at the same time, including information consumers, producers, sharers, and debaters. An understanding of the profile of these information agents and the characteristics of the information they deliver contributes not only to solving the problem of information disorder but also to fostering the social awareness that can build a more equitable digital society. Hence, a broad understanding of information work within information science is now required for active digital citizens.

Understanding roles and information disorder is crucial. Various agents connected to information act as prosumers, a blend of consumption and production. This concept stems from the service work done by these agents in a dynamic environment, not limited to mere information consumption or production. In the digital age, prosumers wield autonomy from institutional sources, allowing them to consume, produce, share, and engage in discussions about the information they filter and prioritize based on personal preferences.

1.1.1 THE CONCEPT OF INFORMATION NEEDS

Interest in our roles as producers, consumers, seekers, finders, and users of information has increased as we engage with a vast world of information. These roles reveal that "use contexts" depend on context rather than a universal definition of information. Scholars advocate for understanding its significance by analysing its importance in specific situations. The term "information role" suggests a deeper examination of the actors in information exchange, extending the concepts of "information need" and "information use" to explore how individuals interact with information. Researchers focus on how these roles influence the social and cultural aspects of information, going beyond just communication technologies.

Information producers

By information-producing creators, we mean journalists, news organizations, authors, editors, photographers, and others involved in creating texts, images, or formats that convey critical political or social information. These creators need time to gather essential information, consult knowledgeable sources, and decide how to present complex data understandably to those who may lack expertise in areas like statistics and economics. They must research and

write accurately while ensuring clarity for readers within limited timeframes. News is seen as a commodity crafted by professionals to encourage democratic dialogue, resulting in an apparently straightforward product. With the rise of social media, traditional information creators can now produce news in diverse formats, extending beyond newspapers, radio, and television to social media platforms.

Role of information producers

Understanding the production and consumption of information is essential. Some define a population segment and identify five roles in information production, focusing here on information producers. From an economic standpoint, producers generate information goods and often manage their circulation, storage, and indexing while providing services. Over the past 150 years, significant changes in production and circulation costs have reshaped how information producers function, leading to distinctions in mass media versus social media as news sources. Modern digital information architectures are also impacting news production and its implications for democracy.

To define a journalist, it's important to recognize that traditional media, such as television and newspapers, primarily creates news content. However, other contributors advocate that everyone can be a journalist. This perspective emphasizes the diversity of news from various producers. In political debates, participants consider all related information as news, reflecting a contemporary understanding influenced by new sources that actively track and share political discussions across platforms.

Information Consumers

Whereas producers produce new information units, information consumers read, view, listen to, or otherwise access existing units. Getting mutual benefits from information often involves consumption, sometimes inviting different conceptions of this phenomenon. Many who study new information consumption define it narrowly through concerns about the content of free expression rights—especially how viewers and readers can best ensure they receive the information they need. But analyzed more broadly, consumption of information can depend not only on the size of new information units but also on what unit is chosen or where an information-supplying agent is targeted.

Size is increasingly seen as a crucial attribute for understanding consumer behavior regarding information. Demand hinges more on the information contained in units than the number

available. Individuals seeking specific answers often require detailed information. The aggregate count of available television programs does not correlate with consumers' willingness to pay, which varies significantly. Most people resist paying for content that's only marginally relevant, while there is strong demand for information tailored to individual needs, influencing preferences for sources like journals or meetings over web pages.

1.1.2 CHARACTERISTICS OF TRADITIONAL CONSUMERS

Consumers are often seen as passive receivers of information, absorbing media content without much engagement. Their consumption is deemed complete only when they understand and retain the information for decision-making. While some accept this information readily, others question its reliability. Typically viewed as consumers rather than producers or remixers, many still wish for the rights to share and reuse content or express dissatisfaction publicly. Individual identities are shaped by various psychological states connected to information consumption and production. Historically, consumers' roles were largely passive due to limited access to information and tools, merely acknowledging receipt by following official accounts and liking content. As they search for relevant content, it's essential for the information provided by official sources to meet their needs. With the rise of big data technologies, users can leverage insights to assist companies in better understanding service behaviors and customizing offers. Ultimately, consumers assess content sources, deciding whether to accept the information they receive.

Consumer behaviour in the digital landscape

The concept of consumer behavior has evolved with changing digital technologies and the online digital experience. This chapter looks at the disruptive factors that have shaped and influenced online consumer behavior and examines the actual shifts in behavior that have been identified by key stakeholders across the internet ecosystem. The speed and spread of new internet technologies and platforms have allowed users to migrate from mere passive consumption of content and services toward active production, personalization, and socialization, where both old and newly formed communities can fulfill user needs. To study internet consumer behavior today in contrast to a decade ago is to witness a rewriting of the rulebook.

Driven by technological innovation, the way that traditional publishers, content producers, intermediaries, platform providers, and consumers have engaged with and utilized the

internet has broken down barriers and provided the platform for instant global communication. These technological breakthroughs have effectively widened access to consumers for those able to provide products and services, capturing their data and the digital exhaust they leave behind. However, not all consumer activity is traditional passive consumption. With the advent of Web 2.0 and the participative web, user activity has transformed into a more dynamic, engaging, interactive model of digital content production, remixing, personalization, and sharing. These types of prosumers could and did actively participate, not just view, and consume. This was a situation that foresaw: “When information moves at the speed of light, everyone is in on the act of knowing.”

1.2 INFORMATION PROSUMERS

"Prosumers" are a social category emerging from a hybridization of producers and consumers. "Prosumer" describes a new phenomenon in which the concepts of "producer" and "consumer" converge, and consumers become active producers. Prosumer refers to consumers who are actively involved in relevant product and service design, home use and consumption, and safety and environmental decision-making, and who may consequently be more involved in quality and technology as well as management decision-making.

While the concept of prosumer has long been around, currently, some suggest seven classifications based on interactions between consumers to illustrate important aspects of a prosumer. They are as follows: traditional producer, at-home producer, industrial producer, at-home co-producer, social co-producer, consumer, and sole survivor.

Although the concept of "prosumer" has been discussed from different angles and perspectives, we have acquired some foundational concepts as a combined definition. According to the following discussion, one may divide prosumers into four groups. The first group refers to cooperative consumers in the production, development, and marketing process. They are, in other words, called consumers of prosumer. The role of cooperation in the production processes distinguishes them from other consumers' positions in the value chain. The next group is the producer who participates in the transformation process. They are referred to as production prosumers. The next group refers to producers who participate in the association between the agency and its basic source. This type of prosumer is called a combination of prosumers. The latter group would be the one that conducts the production process.

Origin of the term "prosumer" by Alvin Toffler

The term **"prosumer"** was first coined by futurist **Alvin Toffler** in his 1980 book, *The Third Wave*. In this work, Toffler explored the evolving relationship between consumers and producers, suggesting that the distinctions between these roles were becoming increasingly blurred in a post-industrial society. He posited that as technology advanced, individuals would not only consume goods and services but also actively participate in their production, effectively merging the roles of consumer and producer into what he termed a "prosumer". It was argued that technology was moving society from the industrial age into the information age, where consumers would increasingly participate in the creation of the goods they consumed.

This concept explained the waning of mass production to mass customization, where products would be tailored to the request of a consumer. The two terms combined to become prosumer, a term used to describe the consumer who was actively involved in deciding what content and experience to co-create in the emerging knowledge economy. There was an anticipation of a shift from a "maker" or "tinkerer" to a more integrated producer-consumer. What differentiates the prosumer from the traditional consumer is that prosumers have the capacity to research and learn about products with professional depth and knowledge. Prosumers do not have to know how to make a product themselves; they can contract the labor to others, but they have the knowledge to make informed decisions about individualizing the products they buy.

Examples from social media, open-source software, and community-driven initiatives for prosumers

We begin with the most appropriate example from social media, going beyond a mere definition of social media platforms. These platforms refer to the tools that allow users to create and share content. Open source can refer to a type of software. Users can access the blueprint of the code, enabling them or others to use, change, or distribute freely. Community-driven initiatives can refer to a varied number of projects that are initiated or slightly steered by a community or several communities, irrespective of or in close collaboration with government or other societal actors.

Multiple opportunities can be created through social media, open-source software, and community-driven initiatives by increasing the information production activities of passive

end-users. While sources of revenue creation are not necessarily guaranteed, financial and non-financial incentives can support information production efforts. Social media platforms depend on users being active and passive. Profiles are created with the hope of others following, liking, or interacting with the creator. It serves the company through the data created by users, including cookies, beacons, or flash cookies.

1.3 INFORMATION DISORDER

The concept of information disorder categorizes information into three types:

- **Disinformation:** Deliberate falsehoods intended to harm.
- **Misinformation**: Incorrect information shared without harmful intent.
- **Mal-information**: Genuine information used maliciously, often taken out of context to cause harm.

The concept of information disorder refers to false information that is unwittingly distributed, while disinformation is information that is deliberately fabricated and spread for specific objectives. Other related notions that capture dubious information are mal-information and fake news. Mal-information is private or true information that is used to inflict harm on a person or organization. Fake news is related to news that is fabricated and presented as if it were authentic. Information disorder captures the various forms of misinformation that are intentionally produced, intentionally altered, and distributed with economic, political, and/or social goals. Information disorder is a general term that encompasses disinformation, misinformation, mal-information, and fake news.

In recent years, international organizations have urged tech companies to collaborate with academic and public institutions to tackle information disorder through global multi-stakeholder approaches. A primary goal is to leverage information and communication technologies for sustainable economic and social well-being worldwide. These efforts underscore a shared recognition of the detrimental effects of information disorder and the necessity for collective actions from governments, organizations, communities, and individuals. However, initiatives must align with the underlying causes of information disorder, requiring a grasp of the dynamics and components of the information ecosystem.

1.3.1 TYPES OF INFORMATION DISORDER

Types of Information Disorder:

Although the synonyms 'information disorder', 'disinformation', 'fake news', 'misinformation', and 'mal-information' are often used interchangeably to refer to the maladies of information pollution, they refer to different but related issues, and the distinctions matter for their understanding and for policy intervention.

- **Misinformation**

Misinformation refers to false or misleading information that is shared without the intent to deceive. People sharing misinformation typically believe the information to be true, making it a common occurrence in everyday communication.

Examples of the different types of misinformation are as follows: News media errors include biased or unrelated headlines, unverified, biased content, errors in taste, hoax news, ads that blend in, and unproven conspiracy theories; civilian graphic design errors include bogus texts, memes taken out of context, absurd rules and guidelines, and misappropriated 'likes'; genuine news is demonstrated by falsifiability through demonstrable proof or computer evidence. The provided examples include timing evidence, lack of statements, and forensic evidence.

Characteristics of Misinformation

Falsehood and Inaccuracy: The primary defining characteristic of misinformation is that it contains incorrect or misleading information. This can include statements that are factually wrong or interpretations that distort the truth.

Intent: Unlike disinformation, misinformation may not be spread with malicious intent. Individuals sharing misinformation often do so without realizing that the information is false, believing they are contributing positively to the conversation.

Contextual Dependency: Misinformation often thrives in environments of uncertainty, where individuals may lack complete information or understanding about a subject. This context can amplify the spread of misinformation, particularly during crises like pandemics.

Emotional Appeal: Misinformation often leverages emotional triggers, using sensational language or imagery that resonates with people's fears or biases, making it more shareable and believable.

Forms of Misinformation

Rumors: Unverified information not attributed to any specific source; these can be true or false and often circulate widely without confirmation.

Fake News: Deliberately fabricated stories designed to mislead readers for political or financial gain. This form often mimics legitimate news sources to appear credible.

Inaccurate Claims: Statements that are factually incorrect but may arise from misunderstandings or misinterpretations rather than intentional deceit.

Fake Scientific Knowledge: Misleading representations of scientific findings or studies, often oversimplified or exaggerated to create a false narrative about health or safety issues.

Contextual Misrepresentation: Information that is accurate in isolation but presented in a misleading context, thus distorting its meaning.

Half-Truths: Statements that include some factual elements but omit crucial details, leading to a misleading overall impression

Although these types of misinformation are often reported as convincing evidence, they are not compelling. We focus on these types of issues largely on general grounds of current policy and public concern over the problems they present nowadays, but bear in mind that we may need to find policy solutions to other significant misinformation problems.

The product of misinformation is a particular piece of information that is false. Some examples of misinformation are a claim that all Muslims are terrorists, that the Chinese government created the COVID-19 virus as a bioweapon, or that the Earth is flat. Another examples include, a person shares a social media post about a health remedy that has been debunked but believes it to be effective, an article incorrectly attributes a quote to a public figure without malicious intent.

- **Disinformation:**

Disinformation is defined as false or misleading information that is deliberately spread with the intent to deceive or cause harm. This can manifest in various forms, including fabricated content, manipulated media, and intentionally misleading narratives, often aimed at influencing public opinion or achieving specific political or economic goals.

Characteristics of Disinformation

Intentionality: Disinformation is characterized by a clear intention to mislead. Unlike misinformation, which may be shared without malicious intent, disinformation is knowingly disseminated to create confusion or manipulate perceptions.

Strategic Use: It can be used in political campaigns, corporate strategies, or social movements to influence perceptions or actions.

Forms: It can take many forms, such as:

Fabricated stories: Completely made-up narratives designed to mislead.

Manipulated visuals: Edited images or videos that distort reality.

Conspiracy theories: False explanations for events that often exploit existing fears or biases.

A successful form of deception capitalizes on human cognitive biases to influence beliefs, whether positive or negative, in ways that can overshadow skepticism concerning the deceiver's identity and intentions. This creates challenges in distinguishing between genuine conspiracy theories and those crafted by adept financial and political entities aimed at generating engagement, such as clicks or likes, for monetary gain. The complexity of this issue is significant. The manipulation of big data feeds is impacted by various factors, including fabricated views that artificially elevate a story's visibility in online playlists, as well as sophisticated tactics that evade bot detection or impede the removal of one's own bots. This complicates the efforts of those trying to determine whether the misinformation propagated by bots and trolls is driven by governmental agendas or private profit motives.

Examples include, a political campaign fabricates stories about an opponent to sway voter opinions. A company spreads false claims about a competitor's product to gain market advantage. Social media campaigns that spread false claims about a public figure to damage their reputation.

- **Malinformation**

Malinformation involves genuine information that is used maliciously, often taken out of context, or manipulated to cause harm.

Definition: True information used maliciously to cause harm. This category focuses on true information, which is used maliciously to cause harm. Malinformation (or more simply, malinfo) is defined as information that is based on reality and used to inflict harm on a

person's or entity's identity, dignity, or reputation. It refers to bad informative content that is shared because it creates false assumptions or targets individuals. It refers to disinformation that is re-contextualized. It refers to true and real information that is altered, framed, or manipulated to serve a particular goal, such as discrediting a public figure, triggering protests, or influencing society in a defined way.

Characteristics of Malinformation

Harmful Intent: Unlike misinformation and disinformation, malinformation involves using true information maliciously.

Sensitive Contexts: It can involve the sharing of private information, doxing, or other forms of harmful exposure.

In today's digital age and the saturation of media and communication channels, malinformation has evolved as an obvious act of journalistic mischief to mislead and potentially create social tension. In today's age, it is difficult to differentiate between the author's intent and those journalists who, as disinformation tools of the authorities, create and distribute journalistic malinformation. In these cases, the power to gain knowledge is lost through a series of lies conveyed in news form, destroying the boundary between news and malinformation. Today, malinformation can be generated at a large scale and shared by groups of people with similar goals, achieving high visibility and impact levels. Examples includes, sharing a true statement made by an individual but omitting crucial context that changes its interpretation (e.g., cherry-picking quotes). Leaking private communications or documents that are true but intended to damage someone's reputation or privacy.

	Misinformation	**Disinformation**	**Malinformation**
Intent	Unintentional/ No intent to deceive; shared in good faith	Deliberate intent to deceive/Intentional	Intentional / Genuine information used maliciously
Nature of Information	Incorrect Information or misleading	False information	True information taken out of context

	Misinformation	Disinformation	Malinformation
Purpose	No harm intended	To deceive or mislead	To inflict harm
Impact	Can cause confusion and misinformed decisions	Can lead to significant harm	Detrimental effects through manipulation
Examples	Sharing outdated health advice / myths	Fabricating news stories, Fake news articles	Doxing individuals, Cherry-picked quotes

1.4 SUMMARY

The complexities of information production and consumption in the digital age, introducing the concept of "information disorder," which includes misinformation, disinformation, and malinformation. It highlights how the Internet has transformed how individuals interact with information, resulting in various roles such as producers, consumers, and prosumers. With the help of such understanding of roles, the principles of a fair digital society are advanced while information disorder issues are prevented and solved.

Media gatheers such as journalists and content producers are examples of information producers coming up with information, presenting the same in a simple, concise manner. Describing how changes in production and distribution affect the media, the article draws a difference between social media and mass media in reporting news.

Information consumers are becoming active, which was considered impossible in the past when people were regarded only as passively consuming content. The digital technologies consumption behavior has been changed, and consumers have become more involved in the content production and personalization. Combines the functions of production and consumption, the term “prosumer” in this case can be attributed to Alvin Toffler. Prosumers actively participate in shaping products and services, reflecting a shift toward mass customization and informed decision-making.

1.5 CHECK YOUR PROGRESS

1. What term describes individuals who simultaneously consume and produce information in the digital age?
    a) Information Consumers
    b) Information Producers
    c) Prosumers
    d) Information Sharers
2. According to the chapter, which of the following best defines "information disorder"?
    a) The process of producing news content
    b) The challenge posed by misinformation, disinformation, mal-information, and fake news
    c) The passive consumption of media content
    d) The role of consumers in shaping information quality
3. Who coined the term "prosumer," and in which book was it first introduced?
    a) Marshall McLuhan; Understanding Media
    b) Alvin Toffler; The Third Wave
    c) Clay Shirky; Here Comes Everybody
    d) Nicholas Carr; The Shallows
4. What role do information producers play in the context of information creation?
    a) They solely consume existing information.
    b) They engage in purposeful activities to create texts, images, or other formats that hold vital information.
    c) They primarily share information without creating it.
    d) They only manage the circulation and storage of information.
5. How has consumer behavior changed with the advent of digital technologies according to the chapter?
    a) Consumers have become more passive in their consumption habits.
    b) Consumers now actively participate in content production and personalization.
    c) Consumer behavior remains unchanged despite technological advancements.
    d) Consumers are less interested in personalized content than before.

1.6 KEYWORDS

1. Prosumers: Individuals who simultaneously produce and consume information in digital contexts.

2. Information Disorder: The phenomenon involving misinformation, disinformation, and fake news affecting society.

3. Information Producers: Creators like journalists and authors who generate valuable information content.

4. Information Consumers: Individuals who access and utilize existing information for decision-making processes.

5. Digital Literacy: The ability to effectively find, evaluate, and use information online.

6. Mass Customization: Tailoring products or services to meet individual consumer preferences and needs.

7. Social media: Platforms enabling users to create, share content, and engage with others online.

8. Web 2.0: The second generation of the internet emphasizing user-generated content and interactivity.

9. Information Quality: The accuracy, relevance, and reliability of information provided to users.

10. Participatory Culture: A culture where individuals actively engage in creating and sharing content collaboratively.

.

1.7 **SELF-ASSESSMENT QUESTIONS**

Q1. Discuss the roles of information producers and consumers in the context of modern digital platforms and their implications for information quality.

Q2. How has the concept of prosumers evolved with technological advancements, and what impact does this have on consumer behavior?

Q3. In what ways do social media and open-source initiatives exemplify the characteristics of prosumers in today's information landscape?

Q4. Reflect on Alvin Toffler's definition of "prosumer" and its significance in understanding the relationship between production and consumption in the information economy.

1.8 ANSWERS TO CHECK YOUR PROGRESS

Answer 1: c) Prosumers

Answer 2: b) The challenge posed by misinformation, disinformation, mal-information, and fake news

Answer 3: b) Alvin Toffler; The Third Wave

Answer 4: b) They engage in purposeful activities to create texts, images, or other formats that hold vital information.

Answer 5: b) Consumers now actively participate in content production and personalization.

1.9 SUGGESTED READINGS

The Information Age: Economy, Society, and Culture by Manuel Castells

Digital India: Understanding Information Technology and Its Impact by Rishabh Sharma

Information Warfare: The New Battle for the Mind by Rajesh Sethi

The Datafication of Society: How Data is Changing Our Lives by Ranjan Kumar

Social Media in India: A Study of Its Impact on Society by Priya Kumar

SUBJECT: COMMUNICATION INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 4	VETTER: PROF. MANOJ DAYAL
THE HISTORY, TYPES, AND DISADVANTAGES OF FAKE NEWS	

STRUCTURE

1.0 LEARNING OBJECTIVES

After go through this lesson you will be able to

- Understand the nature of fake news in the context of today's world
- Know the difference between various type of fake news
- Understand the disadvantages of fake news

1.1 INTRODUCTION OF FAKE NEWS

Fake news refers to information that is intentionally fabricated or misleading, presented in a way that mimics legitimate news sources. It encompasses various forms of misinformation, including disinformation and propaganda, and aims to deceive the audience for financial or ideological gain. There is no universally accepted definition, but it is generally understood as content that lacks verifiable facts and is designed to mislead readers

The phenomenon of fake news has gained significant attention in recent years, particularly with the rise of social media platforms that facilitate rapid information dissemination. This chapter explores the definition, historical context, types, and disadvantages of fake news. Understanding these aspects is crucial in navigating the modern information landscape where distinguishing fact from fiction has become increasingly challenging.

The term "fake news" appears to have gained worldwide attention during a presidential election. Digital media technologies have provided ordinary individuals with previously unavailable means to create and distribute news. News stories generated by these new means share certain characteristics that many refer to as "fake news." Contrary to conventional conceptualizations, different types of fake news exist, each deserving distinct attention. Finally, evidence suggests that exposure to fake news can have negative effects on news consumers. Only once we understand fake news and the distinct types that exist can we then begin to formulate positive ways to mitigate these negative effects.

The word 'fake' generally means not genuine or counterfeit. Then, an ordinary bounded rational agent might conceptually think of news as not genuine or counterfeit. To the public, 'fake news' conveys something that not only misleads but also interferes with rational, democratic decision-making. Consequently, we would categorize all news meeting this simple definition as constituting fake news. However, compared to conventional news, fake news appears to flow, be produced, and have measurable effects differently. Volumes of fake news now contain varying subsets we presently do not discriminate, though each deserves distinct attention.

1.1.1 EMERGANCE OF FAKE NEWS

The origins of fake news can be traced back long before the digital age. Instances of rumour and misinformation have existed throughout human history, often serving political or social purposes. The term "fake news" itself emerged prominently during the 2016 U.S. presidential election but has roots dating back to the 1890s when sensationalist journalism was prevalent. With advancements in technology and communication, the methods of spreading false information have evolved, becoming more sophisticated and pervasive.

The term 'fake news' may be recent, but the concept is not. The British satirist once wrote that 'people do more from custom than judgment, because they have long thought a thing, it must not be thought otherwise.' In addition, 'the more things change, the more they remain the

same.' Although the satirist could not have contemplated the internet's reach, it would be well inclined to extend this analogy to today. However, the internet allows fake news to spread much further and more quickly than its older relative. This amplifies its influence, which can be seen pretty much everywhere. Companies that specialize in spreading fake news can affect elections, public policy, and even daily life.

The big tech companies' platforms, where fake news proliferates, are prime offenders. The point isn't that certain ad-based search engines have plotted to become fake news tools. It's that fake news is profitable for the tech titans—both financially and politically. Algorithms determine the content of internet news organizations, starting with details about revenues and advertising. Many media-related jobs—especially on the business and news sides of the industry—are now analytics workers. They tinker with algorithms and experiment with digital product ideas. The business of journalism requires competing with major social media platforms.

2.1. Historical Origins

Journalism and newspapers have been around almost since the invention of the printing press. Throughout our history, information has been a battlefield, with opponents trying too often to persuade or brainwash through all kinds of means, including even lies. Throughout the long history of the news media, deceiving propaganda for political and other ends has not only been a common occurrence but is also an essential business that helped these media and democracies to grow into the modern forms they are today. In the distant past, news usually came from the pulpit. Modern news sheets began in the 15th or 16th century and were often single-page official pieces from countries or rulers. At the end of the 16th century, due to the enthusiastic promoting influence, the plateau began to shrink into a period. News, however, also became very locally available. Different cities had different gazettes, and often the news found in one gazette was more extensive than what could be read in another. Then came the initial idea for a gazette, which was to expand the news to include Paris and then France. This similarity of news, but covering different objectives and audiences, led to the development of what we now call the specialty press, as was the case with bills written for classified advertisements, or sheets and coins discussing new books.

2.2. Technological Advancements

Advancements in digital technology allow for seamless creation and dissemination of information. In the new technological sphere, the tools require minimal technical skill, time,

or resources to produce and share news-like material. Thus, any person, group, or country with an agenda can create and disseminate the content. Social media is designed to speed up the process by allowing for instantaneous distribution, thereby increasing message exposure. "News" can now be easily facilitated anywhere in cyberspace with a simple click of a mouse. Furthermore, the use of bots, algorithms, clickbait, and personalized news feeds can create echo chambers, increasing misinformation and confusion by letting users pick only the messages they want to hear.

Individuals interacting with the news via digital technologies have altered their role in a media system now dominated by content created and shared by others. Instead of passively consuming news, all media users have the ability to participate as both creators and distributors of news. Consequently, a user becomes part of a nexus of communication that blurs the production of news content and raises the question of what real news is worth defending. The myriad of information sources and free flow of comments can become a challenge to navigate, and much confusion and false belief are likely to occur.

1.1.2 TYPES OF FAKE NEWS

Traditional fake news cannot be strictly divided into satirical and non-satirical types. Hiding behind production costs and frontal attack presence, fake news may be mixed in social media as rumors, false information, and deliberate propaganda. Several studies have classified fake news on social media explicitly. Some argue that fake news is close to rumors because both have some elements of false information, and the spread process is quite similar. However, they also believe that the purpose and motivation behind spreading fake news are different, and celebrities and terrorists are the key spreaders. Furthermore, this study has pointed out that an unusually high level of shock events predicates follow-up spreading.

By lexicon accuracy, the quality of articles, and the found fake news style in news websites, fake news could be classified as 'nonsensical articles', 'click-bait articles', and 'rebuttable articles'. In addition, some researchers believe fake news may be 'propaganda', 'misinformation', and 'rumour'. Last but not least, some of the fake news may be mixed with some of the above styles. One article also believes that the so-called rumour cannot be strictly classified as fake news because some rumour news is true.

Misleading Information: False Connection, Misleading Content, False context

False Connection: Instances where headlines, visuals, or captions do not accurately represent the content, ultimately leading to confusion and misunderstanding among the audience, can significantly affect the integrity of the information being communicated.

Misleading Content: The utilization of authentic and genuine information in a misleading or deceptive manner, such as selectively presenting specific facts to frame an issue or portray an individual inaccurately, can be quite damaging.

False Context: Authentic content is often presented together with misleading contextual information that can significantly alter and transform its intended meaning and interpretation in various ways.

Example: In the lead-up to the 2019 elections, fake news circulated claiming that NRIs (Non-Resident Indians) could vote online. This information was misleading and prompted the ECI to proactively disseminate factual details about voting procedures, ensuring that NRIs were informed about their voting rights without causing significant disruption.

Fake Opinion Polls: A viral video claimed that an opinion poll from ABP News predicted a sweeping victory for the BJP in the upcoming Delhi Assembly elections. This was later debunked as fake news, illustrating how misleading information can influence political perceptions

Imposter and Manipulated Content

Imposter Content: Authentic sources can be impersonated by fake ones in order to lend a false sense of credibility to misleading or false information. This deceitful practice can have significant repercussions, as it misleads the audience and distorts the truth.
Manipulated Content: Genuine images or information can undergo alterations aimed at deceiving the audience, such as doctored photos or edited videos. These modifications might be subtle or overt, yet they serve to misrepresent reality and can cause confusion among viewers.

Fabricated Information

Fabricated Content: Completely false information that is deliberately created with the intent to deceive individuals and cause harm. This encompasses entirely made-up stories that are

presented as if they were legitimate news articles or reports. Such content is designed to mislead the public and create confusion about actual events or issues. Example: In 2016, a message claiming that UNESCO had declared India's new ₹2,000 note as the "best currency in the world" circulated widely on WhatsApp. This fabricated information was debunked by various news outlets, including the BBC, which reported on the false claims without leading to serious consequences for those who shared it

Scientific Denialism

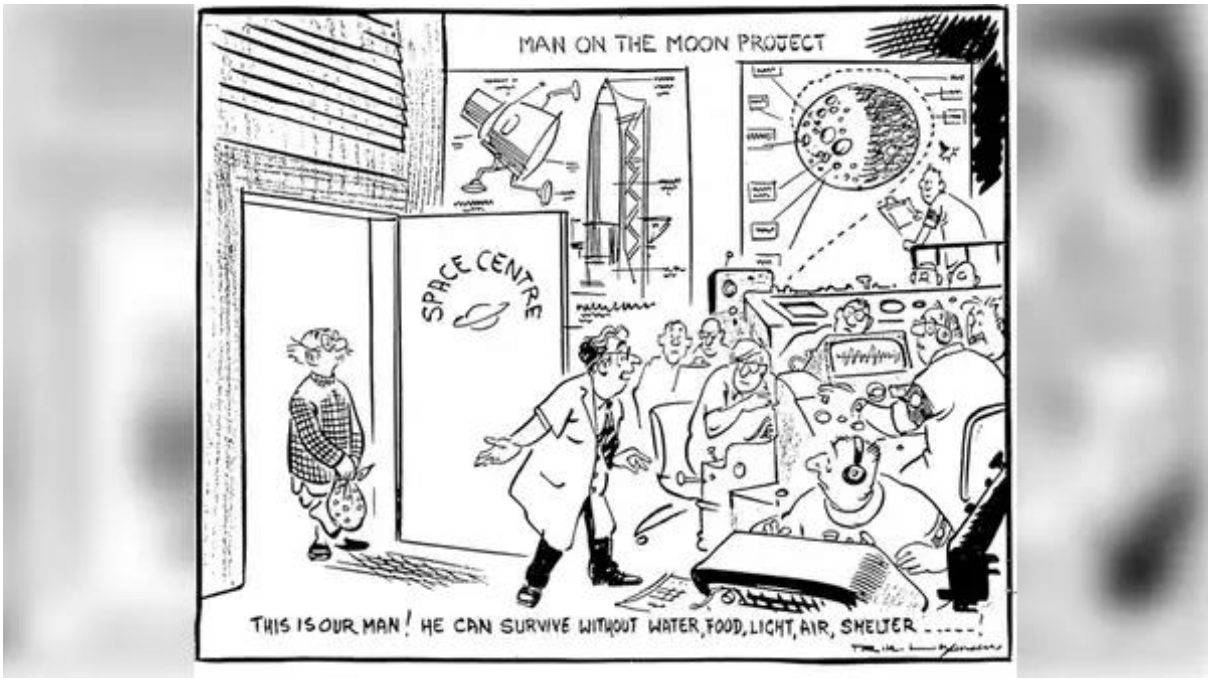
A specific type of misinformation arises that creates inaccurate or deceptive information designed to support and strengthen deeply held beliefs or convictions. This occurrence is particularly common in intricate areas like health and science, where people frequently hold onto their perspectives even when confronted with opposing evidence. Example: During the COVID-19 pandemic, various claims about unproven treatments spread across social media platforms in India. For instance, misinformation suggesting that certain household items could cure COVID-19 circulated but was quickly addressed by health authorities and fact-checkers, preventing widespread panic and ensuring public safety.

Humorous Content: Satire/Parody

Satire and humour can lead to misunderstandings, despite not being fake news. Defined as a method to express ideas or entertain while critiquing politicians and cultures, satire aims to provoke thought rather than deceive. However, if audiences mistake satire for reality, it spreads misinformation. The distinction lies in motive: fake news deliberately distorts facts for profit or to support an agenda, while satire seeks to engage through humour. Both can alter public perception if people fail to recognize elements like irony and sarcasm. For example, satirical pieces highlighting voting's consequences may confuse readers if they overlook the humour. Though satire isn't fake news, it risks creating confusion, underscoring the need for media literacy. Humorous content often exaggerates real events for comedic effect; while this isn't intended to mislead, it can confuse audiences if taken seriously. Satire and parody reveal absurdities in reality, generally posing minimal risks, as they invite re-examination of beliefs. Such commentaries evoke nostalgia and challenge mainstream views. Some news outlets embrace satire in their articles, blending humor into their analyses.

Example:

During the 2019 Lok Sabha elections, a satirical newspaper clipping circulated on social media claimed that failing to vote would result in a deduction of ₹350 from individuals' bank accounts. The Election Commission of India (ECI) quickly identified this as a satirical piece and clarified its status, preventing any widespread panic or confusion about voting regulations. Another famous example depicting use of humour, satire, parody to convey a social issue, a caricature by acclaimed Indian cartoonist. The caricature shows that a common man can survive on moon without water, food, light, air, shelter. That is a false information and unscientific, but it is conveying plight of a common man who is devoid of all these resources at that time.



1.3 DISADVANTAGE OF FAKE NEWS

There are disadvantages to fake news that cannot be ignored, and these are potential implications that also have to be discussed. Some of these disadvantages can include the spread of false information, influence in politics, harming an establishment's credibility, and getting rid of community involvement.

The Spread of False Information It is important to note that concerns regarding fake news have been around long before the twenty-first century. But with the explosion of the internet and especially of social media, the ease with which fake news is created, generated, and spread has caused major concerns. A significant percentage of adults have expressed that

such “fake news” stories caused “a great deal of confusion” about the basic facts of current issues and events. This could cause mistrust in media sources, allowing contradictory information to fall through the cracks.

Influence in Politics Another disadvantage of fake news relates to influence in politics and the potentially severe ramifications it can have. It allows for a wider scope than the possibly problematic format of “post-truth.” It explains that if certain entities are using communication through new media to support subversive policies, concealing messages consistent with hybrid warfare concepts within the information battlefield would allow them to skillfully use these realities in their favor. However, false news could also have a direct impact on politics. Malicious acts place additional pressure on reliable sources, as they elaborate on how we secure the key traits of our society within integrity, accountability, and proactive communications, as they are major foundations of our freedom.

Harming an Establishment’s Credibility Fake news can severely harm a publication’s credibility. A notable percentage of ‘Millennials’ rely on print only. The remaining followers harvest news from any number of sources, not just mainstream outlets, and only half trust the information they receive. A significant percentage of respondents believed fake news headlines judged to be very believable, and are beginning to question the democratic implications of false news. They place that responsibility in the hands of the media, as the Fourth Estate.

Reduced Community Involvement Finally, a drastic disadvantage is the reduction of community involvement. False news can convince people to advocate, protest, and support groups and policies not aligned with their beliefs, and alienate them from the actual problems and crises of concern. Famine, disease, murder, torture, persecution, and destruction of the environment could be the result of the reach of false news and the lack of reality of the message behind it.

1.4 . IMPACT ON SOCIETY

Erosion of Trust: This situation profoundly undermines public trust in legitimate news sources and established institutions, which ultimately leads to increased skepticism about factual reporting and the truthfulness of information presented to the public.

Polarization: Fake news frequently exploits and amplifies existing societal biases, significantly contributing to deepening divisions and increasing polarization on critical and pressing issues that affect communities.

Manipulation of Public Opinion: It has the potential to significantly influence political outcomes by skillfully shaping perceptions based on misleading and false narratives that distort reality.

Financial Consequences: Misinformation has the potential to lead to significant economic repercussions for both businesses and individuals who are affected by false claims or misleading information that can distort reality.

The most dangerous thing about fake news is that it is sometimes incredibly hard to spot. You have to be an experienced reader and most likely have read the news on the specific topic before to catch it. Since the internet is full of information, you are not likely to double-check every single piece of news you see. When people unknowingly share news like this, it massively multiplies the damage such misleading news can inflict, without needing any malicious intent from well-meaning people. Fake news can spread a message of hatred, which can lead to people actually hurting each other. It is incredibly dangerous in situations when people's emotions are running high, and they are not thinking logically, like during election times or disasters. A lot of the fake news circulating starts from foreign websites. It might be an attempt to influence an election or a choice of government. People call this propaganda, and it is a very serious problem.

Fake news has a profound impact on society as it can shape public opinion, influence political decisions, and erode trust in legitimate news sources.

1.5 SUMMARY

fake news is an information that is purposely misleading or completely made up from a news without actual base of facts. It is employed for a reason: financial or ideological, and its impact is to distort the reader’s perception of events. It came into common usage during the 2016 US presidential campaign, but the idea of fake data has been around for centuries. It is recommended to get rid of fake news state that modern technology has worsened it by making it possible for anybody to come up with fake news.

You will find that fake news mainly includes satirical content, the news with related but false

associations or contexts, and pure false news. Audience can be deceived by each type of fake news and the truth can be twisted. For instance, satirical articles may be assimilated by the ears, whereas other type of fake news can create opinion with damaging untruths to political occasions. Because information is freely sharable on the internet as well as through bots, and algorithms makes it even worse to distinguish between actual news and fake news.

The negative effects of fake news entail the release of; false information, its impact on public opinion, denting the image of genuine news agencies, and reduced community participation. Such a loss of confidence results to social splits and influencing of the public opinion on matters of concern. It underlines how fake news can go unnoticed and stressed that the spread of fake news creates a bad impact on the real world such as increasing the hatred between people. In general, fake news is a great danger to people's ability to make informed decisions and to democracy.

1.6 CHECK YOUR PROGRESS

1. What is the primary definition of fake news?
    A) News that is humorous and entertaining
    B) Information that is intentionally fabricated or misleading, mimicking legitimate news sources
    C) News that is based on personal opinions
    D) Information that is only partially true
2. Which historical event significantly popularized the term "fake news"?
    A) The American Civil War
    B) The 2016 U.S. presidential election
    C) The invention of the printing press
    D) The rise of social media in the 1990s
3. What type of fake news involves the use of authentic sources impersonated by fake ones?
    A) Fabricated Content
    B) Manipulated Content
    C) Imposter Content
    D) Misleading Information

4. Which of the following is NOT a disadvantage of fake news mentioned in the document?
    A) Influence in politics
    B) Increased community involvement
    C) Spread of false information
    D) Harm to an establishment's credibility
5. What role do algorithms play in the spread of fake news according to the document?
    A) They help verify the authenticity of news articles.
    B) They determine content based on revenues and advertising, facilitating the spread of fake news.
    C) They prevent the circulation of misleading information.
    D) They enhance user engagement with legitimate news sources.

1.7 KEYWORDS

1. Fake News: Intentionally fabricated information designed to mislead audiences for gain.

2. Misinformation: Incorrect or misleading information spread without malicious intent, often unintentionally.

3. Disinformation: Deliberately false information spread with the intent to deceive and manipulate.

4. Satire: Humorous content that exaggerates reality, often intended to critique or entertain rather than deceive.

5. Propaganda: Biased or misleading information used to promote a political cause or point of view.

6. Algorithms: Automated processes that determine which content is shown to users based on various factors.

7. Echo Chamber: A situation where beliefs are reinforced by communication and repetition within a closed system.

8. Imposter Content: Authentic sources impersonated by fake ones to lend credibility to false information.

9. Fabricated Content: Completely made-up stories presented as legitimate news, intended to deceive the audience.

10. Scientific Denialism: The rejection of scientific evidence in favor of beliefs, often leading to misinformation in health and science topics.

1.8 SELF-ASSESSMENT QUESTIONS

1. What are the historical origins of fake news, and how have they evolved with technology?
2. How does the definition of fake news differ from misinformation and disinformation?
3. What are the various types of fake news, and how do they impact public perception?
4. In what ways does fake news influence political landscapes and public trust in media?
5. What strategies can be employed to mitigate the negative effects of fake news on communities?

1.9 ANSWERS TO CHECK YOUR PROGRESS

Answer 1: B) Information that is intentionally fabricated or misleading, mimicking legitimate news sources

Answer 2: B) The 2016 U.S. presidential election

Answer 3: C) Imposter Content

Answer 4: B) Increased community involvement

Answer 5: B) They determine content based on revenues and advertising, facilitating the spread of fake news.

1.10 SUGGESTED READINGS

Fake News: A History of Misinformation" by R. Kelly

The Misinformation Age: How False Beliefs Spread by C. Paul

Digital Media and Fake News in Asia by S. Sharma

The Truth About Fake News: A Guide for Consumers by A. Gupta

The Information Age: Economy, Society, and Culture by Manuel Castells

Trust Me, I'm Lying: Confessions of a Media Manipulator by Ryan Holiday

SUBJECT: COMMUNICATIONS AND INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. DEEPAK NANDAL
LESSON NO.: 5	VETTER: PROF. DHARMINDER KUMAR
COMPUTER TECHNOLOGIES-1	

STRUCTURE

5.0 LEARNING OBJECTIVES

After reading this lesson you will be able to-

- **Learn the concept of computer system and study computerapplications.**
- **Discuss the concept of computernetworks.**
- **To learn the basics, uses and importance ofinternet.**
- **Learn the role and importance ofEmail.**
- **Discuss the role of computers in massmedia.**

5.1 INTRODUCTION

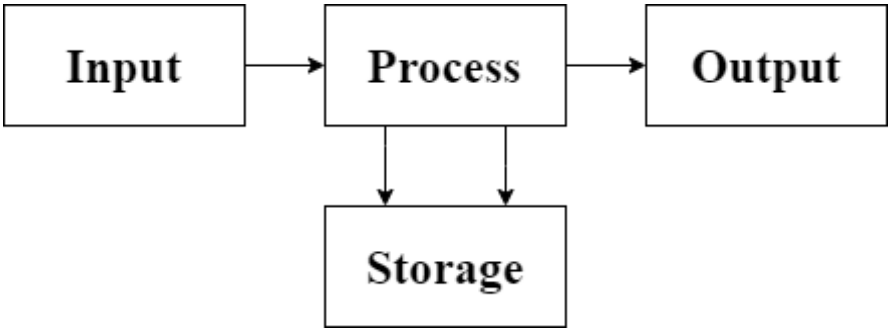
In todays, world computers are considered to be one of the necessities and used in one way or other. Different fields of engineering, medicine and research uses computers

appropriately, not only these fields but also in our daily life all are almost now a day are dependent on computer applications. Day to day computations, communications, banking, reservations,Emails, internet and even cars, games, washing machines etc. we use computers and hand- held devices. Now computers use the internet and provide mass communication, or exchange of information to most of us. Computers are used for communication with family and friends across the world via twitter, Facebook, Skype and so on. Gather information, learn something new, work from home, for entertainment purposes. All this is only possible because of computer's hardware, software, means of transmission, LAN, MAN, memory units and the use of internet.

Society can be defined as "a community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests. To understand the full impact of computers on society, we will first have to understand the meaning of 'computer'. Almost everything we know in today's society is either operated or made by computers. Cars and jets were designed on computers, traffic signals are operated by computers, most medical equipment use computers and even space exploration was started with computers. Most of the jobs today require the use of computers. It is clear that computer is really a tool for mass communication and to understand its applications in mass communication, firstly we need to understand what is a computer unit, internet, network transmission, and other fundaments of computer.

5.2 COMPUTER FUNDAMENTALS

Computer word is derived from the word Compute, and the dictionary meaning of compute is to calculate. But computer is way beyond that, it handles complex arithmetic computations, processes information and other tasks such as accepting, sorting, selection and updating of various kinds of data inputted by the user. In broader sense, digital



computer is represented by figure1.1.

Figure 1.1 Information Processing Cycle

5.2.1 COMPUTERBASICS

The set of instructions given to the computer to perform various operations is called as the computer program. The process of converting the input data into the required output form with the help of the computer program is called as data processing. The computers are therefore also referred to as data processors. The term **hardware** and **software** are almost everywhere is used withcomputer.

- **Hardware-** The hardware is the machinery itself. It is made up of the physical parts or devices of the computer system like the electronic Integrated Circuits (ICs), magnetic storage media and other mechanical devices like input devices, output devices etc.

- **Software-** The computer program is the one which controls the processing activities of the computer. The computer thus functions according to the instructions written in the program. Software is a collection of programs which utilize and enhancethecapability ofthehardware.Figure 1.2 further classified the basic parts of computer as:

  - InputUnit
  - Central ProcessingUnit
  - OutputUnit

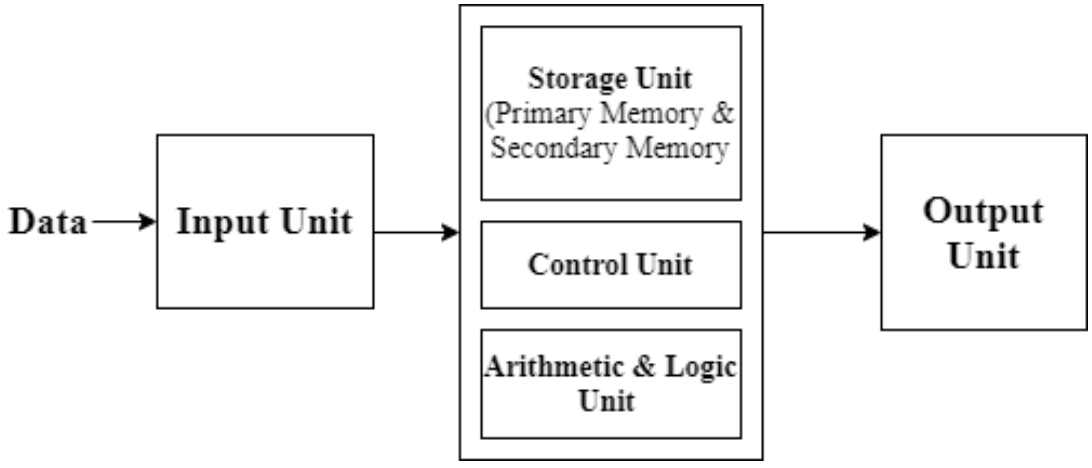


Figure 1.2 Components of Computer System

This central processing unit is considered as the brain of computer system, it mainly comprises of three parts:

- The Control Unit- The Control Unit controls the operations of the entire computer system. The control unit gets the instructions from the programs stored in primary storage unit interprets these instruction and subsequently directs the other units to execute theinstructions.

- The Arithmetic Unit- The Arithmetic Logic Unit (ALU) actually executes the instructions and performs all the calculations and decisions. The data is held in the primary storage unit and transferred to the ALU wheneverneeded.

- The Primary Storage Unit- Primary storage is also called as the main memory, as CPU only interacts with the primary memory and all the information that needs to be processed must be inserted firstly into the main memory. Before the actualprocessingstarts the data and the instructions fed to the computer through the input units are stored in this primary storage unit.

- The Secondary Storage- Secondary storage devices are storage devices that operate alongside the computer's primary storage, RAM, and cache memory. Secondary storage is for any amount of data, from a few megabytes to petabytes. These devices store almost all types of programs and applications. This can consist of items like the operating system, device drivers, applications, and user data. For example, internal secondary storage devices include the hard disk drive, the tape disk drive, and compact disk drive. Most of the secondary storage devices are internal to the computer such as the hard disk drive, the tape disk drive and even the compact disk drive and floppy disk drive.

GENERATIONS OF COMPUTER

In computer, the generations are considered as the change in technology that includes hardware and software as well. There are five generations known till date. The table 1 shows the generation of computers evolves bytime.

Table 1: Generations of Computers

Sr. No	Generation and Description
1.	**First Generation** The period of first generation: 1946-1959. Vacuum tubebased.
2.	**Second Generation** The period of second generation: 1959-1965. Transistor based.
3.	**Third Generation** The period of third generation: 1965-1971. Integrated Circuit based.
4.	**Fourth Generation** The period of fourth generation: 1971-1980. VLSI Microprocessor based. VLSI (Very Large Scale Integrated)
5.	**Fifth Generation** The period of fifth generation: 1980-onwards. ULSI microprocessor based. This generation also include Artificial Intelligence and Parallel Processing. ULSI (Ultra Large Scale Integrated)

CLASSIFICATION OF COMPUTERS

- **Analog Computers:** In analog computers, data is recognized as a continuous measurement of a physical property like voltage, speed, pressure etc. Readings on a dial or graphs are obtained as the output, ex. Voltage, temperature; pressure can be measured in thisway.

- **Digital Computers** These are high speed and programmable devices. Digital Computers are further classified as General Purpose Digital Computers and Special Purpose Digital Computers. General Purpose computers can be used for any applications like accounts, payroll, data processing etc. Special purpose computers are used for a specific job like those used in automobiles, microwaves etc. This classification can also be based on memory and computation speed suchas:

  - Small Computers- PC's, Notebooks,Laptops.
  - Hand Held Computers
  - MainframeComputers
  - SuperComputers

5.2.2 COMPUTER NETWORKS (LAN,WAN, MAN)

Computer Networks forms the basis of communication in the terms of information technology. A network is defined as a set of devices often denoted as nodes connected by communication likes. Whereas the node represents a computer, printer or any other device that is capable of sending or receiving information/ data. Networks are used for communication using emails, live-video sharing, instant messaging and other many methods. Second major objective of networks is to share devices between different set of users, and allowing network users to easily access and maintaininformation.

TYPES OF NETWORK

- LAN (Local AreaNetwork)
- WAN (Wide AreaNetwork)
- MAN (Metropolitan AreaNetwork)

LAN - A local area network or LAN is a network that connects computers within a limited area. This might be in a school, an office or even a home. Generally LANs, are privately- owned networks within a single building or campus of up to a few kilometersinsize. Theyare widely used to connect personal computers and workstations in company offices and factories to share resources (e.g., printers) and exchange information. LANs are distinguished from other kinds of networks by three characteristics:

- Size
- TransmissionTechnology
- Topology

Nodes in a LAN are linked together with a certain topology. These topologies include: BUS, RING and STAR Topology.

WAN- A wide area network, or WAN, spans a large geographical area, often a country or continent. It is a network that covers a larger geographical area, usually with a radius of more than a kilometer. It contains a collection of machines intended for running user (i.e., application) programs. These machines are called as hosts. The hosts are connected by a communication subnet, or just subnet for short. The hosts are owned by the customers (e.g., people's personal computers), whereas the communication subnet is

typically owned and operated by a telephone company or Internet service provider. The job of the subnet is to carry messages from host to host**,** just as the telephone system carries words from speaker to listener. Figure 1.3 shows both LAN and WAN, how these two networks lookslike.

In essence, this mode of telecommunication permits a business to effectively perform its daily performs no matter location. The net is also thought of a WAN. Related terms for alternative kinds of networks are personal area networks (PANs), local area networks (LANs), campus area networks (CANs), or metropolitan area networks (MANs) that are sometimes restricted to an area, building, field or specific metropolitan arearespectively.

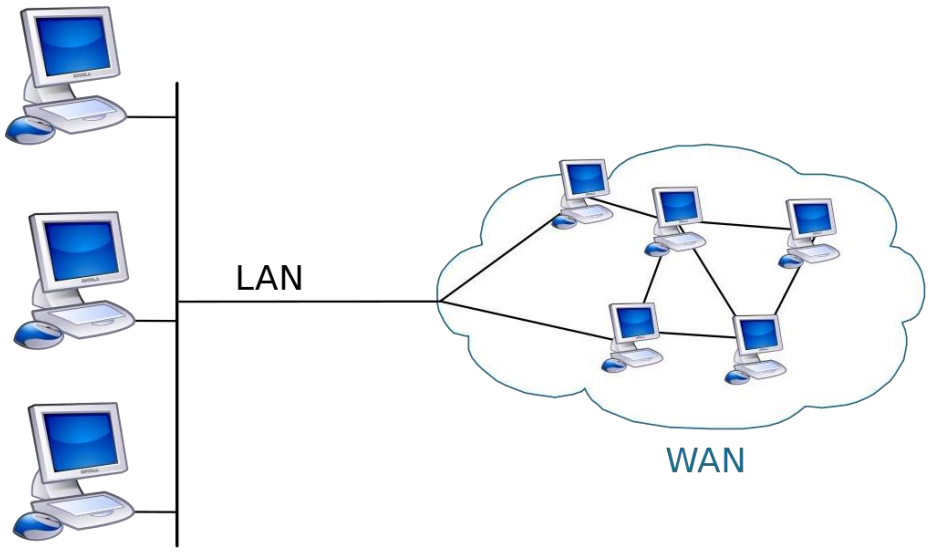


Figure 1.3 LAN and WAN

MAN- A metropolitan space network (MAN) could be a network that interconnects users with pc resources in an exceedingly geographic space or region larger than that lined by even an oversized local area network (LAN) however smaller than the realm lined by a wide area network (WAN). The term is applied to the interconnection of networks in an exceedingly town into one larger network (which might then conjointly provide economical affiliation to a large space network). It's conjointly accustomed mean the interconnection of many native space networks by bridging them with backbone lines. The latter usage is additionally generally mentioned as a fieldnetwork.

5.2.3 ROLE OF INTERNET

Network provide the ability to interact and share information between the computers and because of this only we have internet. Internet is often called as the network of networks. A corporate network may have its computers connected through a local area network, governedby certain rules. Further, this network may be connected with other networks. But, if different networks are governed by different rules, will they be able to communicate with one another? Imagine a group of people having one Tamilian, one Bengali, one Himachali, one Mizo and one from Maharashtra trying to communicate with each other in their own native languages, failing to understand what the other person is trying to say. Therefore, to communicate with each other, some common standard must be followed.

In order to work with the Internet we need to know certain related terms like www, web browsers, web pages, websites, etc. We should know how to get connected to the Internet.

- **WWW-** WWW stands for World Wide Web. A technical definition of the World Wide Web is "all the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP). It is a way of exchanging information between computers on the internet, tying them together into a vast collection of interactive multimedia resources".

- **Web Browsers-** It is a software application used to locate, retrieve and display content on the World Wide Web, including webpages, images, video and other files. As a client/server model, the browser is the client run on a computer or mobile device that contacts the Web server and requests information. The web server sends the information back to the browser which displays the results on the Internet-enabled device that supports a browser. Examples are chrome, firefox, Microsoft explorer and others.

- **Web Pages-** It is a document available on World Wide Web. Web Pages are stored on web server and can be viewed using a web browser. A web page can contain huge information including text, graphics, audio, video and hyperlinks. These hyperlinks are the link to other web pages. Web pages can either be static or dynamic. Static pages show the same content each time they are viewed. Dynamic pages havecontentthat can change each time they are accessed. These

pages are typically written in scripting languages such as PHP, Perl, ASP, or JSP. The scripts in the pages run functions on the server that return things like the date and time, and database information. All the information is returned as HTML code, so when the page gets to your browser, all the browser has to do is translate the HTML.

- **WebSite-** A Web site is a collection of pages. A Web page is an individual HTML document. This is a good distinction to know, as most techies have little tolerance for people who mix up the two terms. A website refers to a central location that contains more than one web page or a series of web pages. For example, www.gjust.org is considered a website, which contains thousands of different web pages, including the page you're readingnow.

Today the Internet is the most powerful tool in the world. The Internet is a collection of various services and resources. However, like every single innovation in science and technology, Internet has its own advantages and disadvantages. Internet has played an important part in our daily life, and in fact, it brings us lots of advantages, and the first I want to mention is communication. The foremost target of Internet has always been the communication. Now thanks to the Internet, we can communicate in a fraction of second with a person who is sitting in the other part of the world. Today for better communication, we can avail the facilities of e-mail, we can chat for hours with our friends. With the help of such services, it has become very easy to establish a kind of global friendship where you can explore other cultures of different countries.

Besides, information is the biggest advantage internet is offering. The Internet is a virtual treasure of information. Any kind of information on any topic is available on the Internet,andyoucanalmostfindanytypeofdataonalmostany kindofsubjectthatyouarelooking for. There is a huge amount of information ranging from government law and services to market information, new ideas and technical support. It is very useful for students who usually have to gather information to do theirhomework.

Entertainment is another popular reason explaining why many people prefer to surf the Internet. Downloading games and songs, visiting chat rooms or just surfing the web are some of the pleasures people have discovered. When people surf the web, there are numerous things that can be found. Music, hobbies, news and more can be found and

shared on the Internet. Apart from those advantages, Internet also has some disadvantages, and one of which is harmful sites. This is perhaps the biggest threat to people's healthy mentallives.

5.2.4 E-MAIL

E-mail or Electronic mail is considered as one of the premier uses of Internet. It is a flexible and handy tool of communication via the electronic medium. Its most attractive features are: speed, portability and versatility. Email is a system of global communication in which the user can compose a message in his or her account and send it to person/s possessing email accounts. It is an exchange of information among online service provider users. The message sent can be regenerated at the receiver's email account within seconds. Over the years, a number of tools of electronic communication such as Facebook, Twitter, blogs etc. have emerged yet email has retained its charm and will continue to do so in the future. Due to its unique features and adaptability, it lends itself to a number of uses. The advancement of technology and the flooding of smart internet enabled phones, in present times, checking, sending and receiving emails is not only restricted to PC or laptops but it can be accessed on the cell - phones also making email communication accessible at all times. Email communication is used in almost all aspects of human interaction. It is used for formal as well as informal communication. You can send up to 25 MB in attachments. If you have more than one attachment, they can't add up to more than 25 MB. If your file is greater than 25 MB, Gmail automatically adds a Google Drive link in the email instead of including it as an attachment. Itis used for interaction in marketing, news,academics,broking etc. along with large number of other areas. Some of the major advantages of E-mail are-

- **Productivity tools:** Email is usually packaged with a calendar, address book, instant messaging, and more for convenience andproductivity.
- **Access to web services:** If you want to sign up for an account like Facebook or order products from services like Amazon, you will need an email address so you can be safely identified andcontacted.
- **Easy mail management:** Email service providers have tools that allow you to file, label, prioritize, find, group, and filter your emails for easy management.

You can even easily control spam, or junkemail.

- **Privacy:** Your email is delivered to your own personal and private account with a password required to access and viewemails.
- **Communication with multiple people:** You can send an email to multiple people at once, giving you the option to include as few as or as many people as you want in a conversation.
- **Accessibleanywhereatanytime:**Youdon'thavetobeathometogetyourmail. You can access it from any computer or mobile device that has an Internet connection.

HOW E-MAIL WORKS ON THE INTERNET

Like a postal address, an e-mail address specifies the destination of an electronic message. An Internet e-mail address looks like this: user name@domain name. The user name is a unique name that identifies the recipient. The domain name is the address. Many people can share the same domain name. E-mail is sent and received through electronic "post offices' known as mail servers. To read e-mail, one must retrieve it from the mail server. If the message doesn't reach its destination the first time, the mail server sends it again.

- **To** contains the e-mail addresses of the recipients. This is a mandatoryentry
- **CC,** short form of Carbon Copy, this is optional.
- **BCC,** Short form of Blind Carbon Copy, contains the e-mail addresses of other recipients who receive copies, but their names and addresses are hidden from the other recipients. This isoptional.
- **Subject** contains the main topic of the message. Keep this brief. Recipients see this in their summary of incominge-mails.
- **Attachment** contains the names of files that you may be sending, for example, a word-processing document or aspreadsheet.
- **Body** contains the messageitself.
- E-mail can include a **signature** at the end of the message. An e-mail signature is not your hand-writtensignature.

5.3 ROLE OF COMPUTER IN MASS COMMUNICATION

Mass Communication: Decades ago, computers were large, clunky machines that were unable to do much. Even simple calculations (by today's computing standards) would take computers the size of closets a long time to complete. Oh, and forget about using those original computers to play video games, browse the web, or send an email. Things are very different today. Now computers use the internet and provide mass communication, or the exchange of information on a large scale. Today, this means communication across the entire world at the speed of light. The conventional mass media has been replaced by up to date most complicated and most sophisticated. Along with this technological advancement media industry growing fast and rapid. Information revolution had made the information process speedy and rapid; news and information can be sent in a flash to any corner of theworld.

COMPUTERS IN MASS COMMUNICATION

Today in this age of information technology the use of computer is the part media industry (Print, Broadcast, Electronic and Advertising Agency, News Agency and Films). Composing, printing, animation, diagrams, audio, video visuals, large data storage and centralized newspapers, magazines publishing is only possible through this advance system. Online newspaper editions are also possible through this rapid technology.

1. The used of computerized systems has meant the down of the electronic newsroom, with news editors checking reporters files on the screen, sending back stories where coverage is not sufficient or has failed in some way, and routing stories to the copy-taster and the subeditors as they becomeready.

2. News websites and news blogs give numerous ways to stay connected and up-to-date. The publications join Twitter and make a Facebook page to get the support of the demographic that no longer reads print news. However, maybe the best source of news comes from retweets and from audiencereporting.

3. Without computer now film industry is zero. Helps to make the film more effective than the traditional. Edits can be made through a mouse click. We use compute for special effects like Editing, Graphics, Animation andDistribution

4. Computers make it possible for reporters to cover stories that were simply impossible to write in simpler times. It would take several reporters several lifetimes

to do the data analysis to done on computers.

5. Photo setting was made possible by the computer but it owed its utilization to the web-offset printingprocess.

6. For years, publishers of newspapers, magazine and other print products have been fascinated with the idea of delivering information electronically. In contrasttoconventional printing on paper, delivery by computer and other means seemed to offer several benefits both the producer andconsumer.

7. Computer is used in medics; Patient monitoring, patient records, diagnosis, hospital administration, medical history records and life supportsystem.

8. Advertisers-use computers to create the layout their client wants for a certainproject.Ad Agencies-use computers to present the finished work to their clients and re-touch anything the client may want changed.

9. Suppliers-may use computers to make spreadsheets of the items they have sold or are selling. Media-use computers to distribute their ads whether in newspapers, magazines, or TVstations.

10. Graphic Designers use high tech creative programs in order to create a specific add for their client. The client is able to make changes to the design with the computer programs.

11. Computer Generated Graphics-are used for TV commercials and help reach a specialized market, such as children to help show things they might not otherwise understand. As you can see, computers help the world of advertising out in a big way. Whether it is writing scripts, sending emails, or designing ads computers can be used for a lot. Without the use of a computer, advertisers would be sent back to the drawing boards.

5.4 CHECK YOUR PROGRESS

Note: 1) Use the space below for your answers.

2) Compare your answers with those given at the end of this lesson.

FILL IN THE BLANKS

1. Personal Computers are also calledas……
2. The primary storage unit is also calledas……
3. Arithmeticlogic unit is a partof……
4. Web pages are written in whichlanguage……
5. CC is used for……and BCC is usedfor…….

5.5 SUMMARY

The lesson starts with the fundaments of the computer that elaborates the basics assembly of computer. How a computer works? A computer is a machine composed of hardware and software components. A computer receives data through an input unit based on the instructions it is given and after it processes the data, it sends it back through an output device. The user provides the input to the machine and the CPU processes that information to produce the output. Furtherit classifies the CPU portion, which consists of Primary memory, ALU and CU. The control unit of the CPU contains circuitry that uses electrical signals to direct the entire computer system to carry out, or execute, stored program instructions. Like an orchestra leader, the control unit does not execute program instructions; rather, it directs other parts of the system to do so. The control unit must communicate with both the arithmetic/logic unit and memory. Further the role of internet in mass communication is very important, for the same it is better to understand what is internet and how it works? Internet is the global system of interconnected computer networksthat uses theInternet protocol suite(TCP/IP) to link devices worldwide. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter- linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and file sharing. The role of LAN and WAN is very important in establishment of internet. LAN is a group of network devices which allow the communication

betweenconnecteddevices.Theprivateownershiphasthecontroloverthelocalareanetwork rather than public. LAN has short propagation delay than MAN as well as WAN. WAN covers the large area than LAN as well as MAN such as: Country/Continent etc. WAN is

expensive and should or might not be owned by one organization. PSTN or Satellite medium are used for wide area network. This all sums up with the role of computer in mass communication, the WWW, Internet and email revolutionized the way individuals communicate with each other. Rather than waiting days or weeks to see information, we can now view all information at the speed of light. Email has fundamentally transformed how people share information and conduct business based on the speed and flexibility it offers. Computers can process data at approximately 20 million bytes per second so it is easy for them to download and instantly display almost any text email.

5.6 KEYWORDS

CC:CC stands for carbon copy which means that whose address appears after the CC header would receive a copy of the message. Also, the CC header would also appear inside the header of the receivedmessage.

BCC: It stands for blind carbon copy which is similar to that of Cc except that the Email address of the recipients specified in this field do not appear in the received message header and the recipients in the To or Cc fields will not know that a copy sent to these address.

Network Topology: Network topology refers to the physical or logical layout of a network. It defines the way different nodes are placed and interconnected with each other. Alternately, network topology may describe how the data is transferred between these nodes.

ALU: An arithmetic logic unit (ALU) is a digital circuit used to perform arithmetic and logic operations. It represents the fundamental building block of the central processing unit (CPU) of a computer. Modern CPUs contain very powerful and complex ALUs. In addition to ALUs, modern CPUs contain a control unit (CU).

Primary Memory: Primary memory is computer memory that is accessed directly by the CPU. This includes several types of memory, such as the processor cache and system ROM. However, in most cases, primary memory refers to system RAM

5.7 SELF-ASSESEMENT TEST

1. List and explain in brief the characteristics of computers.

2. What is internet and how itworks?
3. Explain Computer Networks? What are the different types of CN, also briefly discuss topologies.
4. Discuss briefly the role of E-mail in masscommunication.
5. What is the role of mass communication insociety?
6. How internet helps in masscommunication?

5.8 ANSWERS TO CHECK YOUR PROGRESS

1. DesktopComputers
2. Mainmemory
3. CPU
4. HTML
5. Carbon copy and Black carboncopy

5.9 REFERENCE SUGGESTED/READINGS

1. http://www.tmv.edu.in/pdf/Distance_education/BCA%20Books/BCA%20I%20SEM/BCA-121%20Computer%20Fundamental.pdf
2. https://www.tutorialspoint.com/computer_fundamentals/computer_fundamentals_tutorial.pdf
3. https://www.researchgate.net/publication/258339295_FUNDAMENTALS_OF_COMPUTER_STUDIES
4. https://massmediaassignments.wordpress.com/2017/03/11/use-of-computer-in-mass-communication/
5. https://www.researchgate.net/publication/235417104_The_Role_of_Information_Technology_in_Media_Industry
6. https://study.com/academy/lesson/the-computer-as-a-mass-communication-tool.html

SUBJECT: COMMUNICATIONS AND INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. DEEPAK NANDAL
LESSON NO.: 6	VETTER: PROF. DHARMINDER KUMAR
COMPUTER TECHNOLOGIES-II	

STRUCTURE

6.0 LEARNING OBJECTIVES

After reading this lesson you will be able to:

- **Learn about importance of technologies in mass communicatios.**
- **Learn and discuss technologies such as facsimilie, videotext and teletext.**
- **Discuss the role and meaning of multimedia.**
- **Discuss web technologies such as website, webpages.**
- **Learn things about the protocols used in webtechnologies.**

6.1 INTRODUCTION

The "Internet and digital media age" began in 1990 and continues today. Whereas media used to be defined by their delivery systems, digital media are all similarly constructed with digital, binary code made up of ones and zeros. Instead of paper being the medium for books, radio waves being the medium for sound broadcasting, and cables being the medium for cable television, a person can now read a book, listen to the radio, and access many cable television shows on the Internet. In short, digital media read, write, and store data (text, images, sound, and video) using numerical code, which revolutionized media more quickly than ever before.

Just as technological advances made radio and television possible, the Internet would not have been possible without some key breakthroughs. The Internet is a decentralized communications and information network that relies on the transmission of digital signals through cables, phone lines, and satellites, which are then relayed through network servers, modems, and computer processors. The development of digital code was the first innovation that made way for the Internet and all digital media. Surprisingly, this innovation occurred in the 1940s, leading to the development of the first computers. Second, in 1971, microprocessors capable of reading and storing electronic signals helped make the room-sized computers of the past much smaller and more affordable for individuals. Last, the development of fiber-optic cables in the mid-1980s allowed for the transmission of large amounts of information, including video and sound, using lasers to create pulses of light. These cables began to replace the copper cables used by telephone, television, cable, and satellite companies. Because of these advances, information now travels all around us in the form of light pulses representing digits (digital code) instead of the old electrical pulses.

The birth of the Internet can be traced back to when government scientists were tasked with creating a means of sharing information over a network that could not be interrupted, accidentally or intentionally. More than thirty years ago, those government scientists created an Internet that was much different from what we think of as the Internet today. The original Internet was used as a means of sharing information among researchers, educators, and government officials. That remained its main purpose until the Cold War began to fade and the closely guarded information network was opened up to others. At this time, only a small group of computer enthusiasts and amateur hackers made use of the Internet, because it was still not accessible to most people. Some more technological advances had to occur for the Internet to become the mass medium that it is today.

The main problem was that there wasn't a common language that all computers could recognize and use to communicate and connect. He solved this problem with the creation of the hypertext transfer protocol (HTTP), which allows people to make electronic connections or links to information on other computers or servers. He also invented hypertext markup language (HTML), which gave users a common language with which to create and design online content. I actually remember learning HTML code and creating my first (very simple by today's standards) website in 1996. Learning HTML code wasn't something that the masses were going to rush to do, but new software programs and webpage building programs emerged that allowed people to build web content without having to know the code. As if inventing HTTP and HTML wasn't enough, Berners-Lee also invented the first browser, which allowed people to search out information and navigate the growing number of interconnections among computers. JavaScript is a client-side scripting language developed by Brendan Eich. JavaScript can be run on any operating systems and almost all web browsers. You need a text editor to write JavaScript code and a browser to display your web page.The programs in this language are called scripts. They can be written right in a web page's HTML and run automatically as the page loads. Scripts are provided and executed as plain text. They don't need special preparation or compilation to run. In this aspect, JavaScript is very different from another language called Java.

From the beginning, the Internet was a mass medium like none other. The majority of the content was user generated and the programs needed to create and navigate online content were in the public domain. This fusing of free access to information and user creativity still forms the basis of digital "new media" that are much more user controlled and personal. Demand for Internet access and more user-friendly programs created the consumer side of the net, and old media companies and regular people saw the web as another revenue generator.

6.2 TECHNOLOGIES FOR MASS-COMMUNICATION

The evolution of means of communication witnessed a substantive boost in the past two hundred years. The pace of invention has accelerated from one every fifty years or so in the eighteenth century to several per year at the dawn of the twenty-first century. The decisive turn was taken during the second half of the nineteenth century, when a flurry of technical inventions changed the communication landscape. By the late nineteenth century, important inventions had already been made public: the telegraph, the telephone, the motion picture camera, and the motion picture projector were among the most prominent information and

media technologies to emerge. Perhaps more important was the invention of electricity, which would become the bloodline of the information revolution. These early inventions created the conditions that made the process of mass communication possible; equally important is the fact that these inventions established the early foundations for the current global communication system. As already stated, the development of digital code, microprocessors, and fiber-optic cables were key technological advances that made the Internet and digital communication possible. Rapid developments around 1990, such as the creation of HTTP and HTML coding and Internet browsers, created what we know today as the World Wide Web.

6.2.1 FACSIMILE

A facsimile or fax for short is a electronic machine. A fax machine contains a photo electronic cell which scans an image and converts the black, grey and white into electronic signal and so modulates the telephone carrier wave. The fax machine will also act as a receiver, able to decode incoming signals and print them as images on special paper. The original document is scanned with a fax machine, which treats the contents (text or images) as a single fixed graphic image, converting it into a bitmap. In this digital form, the information is transmitted as electrical signals through the telephone system. The receiving fax machine reconverts the coded image and prints a paper copy of the document.

Almost all modems manufactured today are capable of sending and receiving fax data. Fax/modem software generates fax signals directly from disk files or the screen. Even if a document is text only, it is treated by the computer as a scanned image and is transmitted to the receiver as a bitmap. Faxing a message online works well if the recipient wants only to read the message. However, if the document requires editing, it must be converted into ASCII text by an OCR (optical character recognition) program, or it must be retyped manually into the computer. A more efficient method of sending documents that require modification is through the e-mail system. E-mail files are already ASCII text so they can be edited immediately in any text editor or word processing program.

6.2.2 VIDEOTEXT

Meaning of videotext- An electronic data retrieval system in which usually textual information is transmitted via telephone or cable-television lines and displayed on a television set or video display terminal especially : such a system that is interactive — compare teletext.

Video is a great way to break up the monotony of your communications with active, dynamic content. Emojis, GIFs, and photos are also great ways to do that, but they're just an appetizer.

Videotext and videotex are interchangeable terms, and can be used for the same. videotex systems were menu-driven systems designed for display on television sets. Videotex information included news, weather, local information, and services such as bus schedules and entertainment event listings. Many large media firms implemented videotex systems in the United States, and several countries (notably England, Canada, and France) invested large amounts of money in the technology.

6.2.3 TELETEXT

TELETEXT is a one-way, or non-interactive, system for transmission of text and graphics via broadcasting or cable for display on a television set. A decoder or microchip resident in the TV set is needed to extract the teletext information. Teletext can be transmitted over one-way cable or over-the-air broadcasting via radio or television. In the case of TV, it can occupy a full channel or be encoded in the vertical blanking interval, or VBI. If you've ever mistuned a TV set and noticed the wide, black line that appears between "frames," you've seen the VBI. Before the development of teletext, the VBI was an unused portion of the television broadcast.

Teletext can be liked to a sort of "Rolodex in the sky." It is a closed loop of pages of information that are transmitted one after the other, over and over again. The viewer uses an on-screen index or directory to choose the pages of information to be viewed. A page number is then entered and, after a slight delay, the page is displayed on the television screen. Although teletext may appear to the viewer to be interactive, it is not. When one punches in a page number on a teletext decoder, the machine simply waits for that page to be broadcast, captures it and displays it on the television set. The delay varies depending on the number of "frames" in the teletext "loop" or set, but it generally averages 5 to 30 seconds.

- Usually about 100-150 frames in a series, sometimes with 2 or 3 frames to a page.
- Service limited to a few hundred pages to make delays tolerable to viewers.
- User selects subsections from the main menu using a hand-held keypad similar to a TV remote control.
- Access time for a particular frame can be up to 30 seconds, a key factor.

- Many believe teletext has the best potential to become a mass medium because of the almost universal presence of television sets in many nations.

6.2.4 MULTIMEDIA

Multimedia is the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate. This definition contains four components essential to multimedia. First, there must be a computer to coordinate what you see and hear, and to interact with. Second, there must be links that connect the information. Third, there must be navigational tools that let you traverse the web of connected information. Finally, because multimedia is not a spectator sport, there must be ways for you to gather, process, and communicate your own information and ideas. If one of these components is missing, you do not have multimedia. For example, if you have no computer to provide interactivity, you have mixed media, not multimedia. If there are no links to provide a sense of structure and dimension, you have a bookshelf, not multimedia. If there are no navigational tools to let you decide the course of action, you have a movie, not multimedia. If you cannot create and contribute your own ideas, you have a television, not multimedia.

Types of Multimedia

There are certain types of media used in multimedia presentations, from simple to complex visual and audio devices. Multimedia components are divided into:

- **Text**- This refers to written documents, the words seen in handouts, powerpoint presentations, Web sites, and reports. One of the most simple types of media, text is also used to communicate the most information and appears in conjunction with visual aids.
- **Audio**- This is the sounds that often accompany visual presentations. Sound by itself can be used in radio broadcasts or online audio files, but in multimedia presentations audio is used as a complementary media. Sound effects can help make a presentation more memorable, while hearing the main points of information spoken can help listeners focus.
- **Still images**- Photographs, taken either by digital or analog means, are an important part of multimedia productions. Well-placed visual aids can explain concepts with clarity.
- **Animation**- Animations are graphics that move, accompanied by audio effects.

- **Video**- Video media is used to spread interviews, create movies, and post personal updates to communicate business messages. Currently, businesses can use videos online or create CDs to spread for instructional use within their company.
- **Interactivity**- The newest form of multimedia, interactivity, is a computer-based tool which allows users to choose to learn different parts of information on their own terms. By highlighting or choosing links and sections, users can manipulate the information environment, examining whatever knowledge is important to them.

6.2.5 ANIMATION

Animation is the process of designing, drawing, making layouts and preparation of photographic sequences which are integrated in the multimedia and gaming products. Animation involves the exploitation and management of still images to generate the illusion of movement. A person who creates animations is called animator. He / she use various computer technologies to capture the still images and then to animate these in desired sequence. Animation is a method of photographing successive drawings, models, or even puppets, to create an illusion of movement in a sequence. Because our eyes can only retain an image for 1/16 of a second, when multiple images appear in fast succession, the brain blends them into a single moving image. In traditional animation, pictures are drawn or painted on transparent celluloid sheets to be photographed and shown on film. Early cartoons are examples of this, but today, most animation is made with computer-generated imagery or CGI.

To create the appearance of smooth motion from these drawn, painted, or computer-generated images, frame rate, or the number of consecutive images that are displayed each second, is considered. Moving characters are usually shot “on twos” which just means one image is shown for two frames, totaling in at 12 drawings per second. 12 frames per second allows for motion but may look choppy. In the film, a frame rate of 24 frames per second is often used for smooth motion animation. There are several types of animation that employ different techniques to achieve their desired effect.

Types of Animation

- Traditional Animation
- 2D Animation (Vector- based)

- 3D Animation
- Motion Graphics
- Slop Motion

6.3 WEB TECHNOLOGIES

Web technology refers to the means by which computers communicate with each other using markup languages and multimedia packages. It gives us a way to interact with hosted information, like websites. Web technology involves the use of hypertext markup language (HTML) and cascading style sheets (CSS). The methods by which computers communicate with each other through the use of markup languages and multimedia packages is known as web technology. In the past few decades, web technology has undergone a dramatic transition, from a few marked up web pages to the ability to do very specific work on a network without interruption.

The top web technologies are:

6.3.1 WEBSITE

A website is the group of web pages which are placed in a location on the internet under a domain. For example, a company website can have various web pages such as home, about us, contact us, products, services and other. It is accessible through a web address. The website can be designed using static web pages or dynamic web pages. Contents on a website are globally viewed, remains same for the different individuals.

A website can be industry-specific, product specific or services specific etc.; these websites are intended to educate their site visitors about their industry, products or services information. A website must be hosted on a server at first so that it can be accessed on the internet. In this sense, a website represents a centrally managed group of web pages, containing text, images and all types of multi-media files presented to the attention of the Internet users in an aesthetic and easily accessible way. All websites enabled through the Internet constitute the World Wide Web (WWW).

6.3.2 WEBPAGE

A web page can be defined as a solitary page of a website. When a user wants to access a webpage, it can be accessed by using a single URL, and that page can be copied and shared. Viewing a webpage doesn't require any navigation, unlike a website. It can contain text,

graphics, audio, video, downloadable hyperlink to other pages, etc. Web browsers are used to display the contents of the webpage through connecting to the server so that the remote files can be displayed. These are created by using a programming language such as HTML, PHP, Python and Perl etc. The HTML pages have a simple appearance and are not that interactive but consume less time to load and browse.

There are two types of web page – Static web page and dynamic webpage. In the static web page designing, when a product acquires any change in information, the change must reflect on the website. At that time, a person must incorporate the change on every web page manually, and this is time consuming and tiresome process. Where in the dynamic web page, a central database is used to store the product information. It is a document, commonly written in HTML, that is viewed in an Internet browser. A web page can be accessed by entering a URL address into a browser's address bar. A web page may contain text, graphics, and hyperlinks to other web pages and files. A web page is often used to provide information to viewers, including pictures or videos to help illustrate important topics. A web page may also be used as a method to sell products or services to viewers. Multiple web pages make up a website, like our Computer Hope website.

6.3.3HOMESITE

Homesite or homepage is a document, commonly written in HTML, that is viewed in an Internet browser. A web page can be accessed by entering a URL address into a browser's address bar. A web page may contain text, graphics, and hyperlinks to other web pages and files.

A web page is often used to provide information to viewers, including pictures or videos to help illustrate important topics. A web page may also be used as a method to sell products or services to viewers. Multiple web pages make up a website, like our Computer Hope website.

6.3.4 BASICS OF PROTOCOLS USED

A web browser lets your computer communicate with web servers around the world and giving you the right informations with just a few clicks away. Different web browsers have different way of retrieving informations, but one thing they have in common is web communication protocols. Web communication protocols are technology used to transfer information across the internet. For example, a web browser uses these protocols to request information from a web server, which is then displayed on the browser screen in the form of

text and images. The degree to which users can interact with that information depends on the protocol.

Defination- "*A protocol is a set of rules that define how two networked computers should talk to each other"*

HTTP

HyperText Transfer Protocol (HTTP) is used by the World Wide Web. HTTP defines how messages are formatted and transmitted and the actions Web servers and browsers should take in response to various commands. For example, when a user enters a URL into a browser and presses Enter, it is HTTP, not the browser, that instructs the ISP's server to fetch and transmit the requested Web page. HTTP works in conjunction with HTML to display WebWeb pages. The Hyper Text Markup Language (HTML) is the protocol that instructs the browser in how aspects of the received Web page are to be displayed. HTTP is called a stateless protocol. Stateless means that each command is run without reference to prior commands. Stateless commands greatly inhibit the ability to add "intellegence" to the language because each command cannot receive or share data with other commands, as occurs in true programming languages. For this reason, many add-in languages have been designed to supplement HTTP to enable interaction with the user: ActiveX, Java, JavaScript, and cookies.

HTTP is a classic "client-server" protocol. Users click a link on their web browser (the client), and the browser sends a request over the internet to a web server that houses the site the user requested. The server sends back the content of the site, such as text and images, which display in users' web browsers. HTTP is an unsecure communications protocol because the data it sends back and forth between a browser and a server is unencrypted and can be intercepted by third parties.

FTP- File Tranafer Protocol

A protocol is a set of rules that networked computers use to talk to one another. And FTP is the language that computers on a TCP/IP network (such as the internet) use to transfer files to and from each other.

Goal of FTP- FTP was created with the overall goal of allowing indirect use of computers on a network, by making it easy for users to move files from one place to another. Like most TCP/IP protocols, it is based on a client/server model, with an FTP client on a user machine

creating a connection to an FTP server to send and retrieve files to and from the server. The main objectives of FTP were to make file transfer simple, and to shield the user from implementation details of how the files are actually moved from one place to another. To this end, FTP is designed to automatically deal with many of the issues that can potentially arise due to format differences in files stored on differing systems.

Overview- After a TCP connection is established, an FTP control connection is created. Internal FTP commands are passed over this logical connection based on formatting rules established by the Telnet protocol. Each command sent by the client receives a reply from the server to indicate whether it succeeded or failed. A data connection is established for each individual data transfer to be performed. FTP supports either normal or passive data connections, allowing either the server or client to initiate the data connection. Multiple data types and file types are supported to allow flexibility for various types of transfers. Figure 2.1 showa the FTP transmission of client-server model.

To ensure that files are sent and received without loss of data that could corrupt them, FTP uses the reliable Transmission Control Protocol (TCP) at the transport layer. An authentication system is used to ensure that only authorized clients are allowed to access a server. At the same time, a feature sometimes called anonymous FTP allows an organization that wishes it to set up a general information server to provide files to anyone who might want to retrieve them.

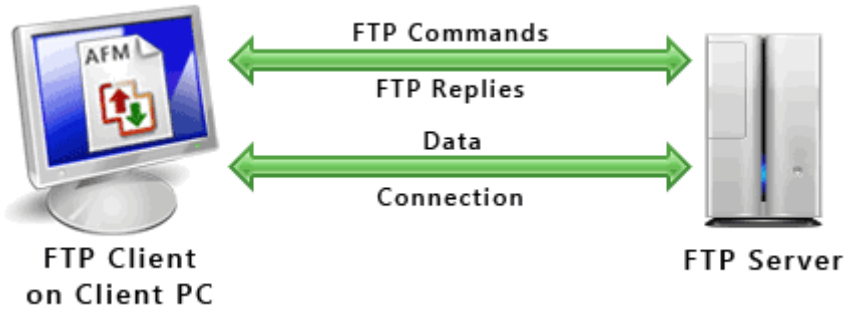


Figure 2.1: FTP Client-Server Model

Main Features of FTP-

- Interactive Access FTP provides an interactive interface to allow humans to interact with remote servers.
- Format Specification FTP allows the client to specify the type and representation of stored data. The user can specify whether a file contains text or binary data.

- Authentication Control FTP requires clients to authorize themselves by sending a login name and password to the server before requesting file transfers.

HTML

HTML stands for Hypertext Markup Language. It allows the user to create and structure sections, paragraphs, headings, links, and blockquotes for web pages and applications.

HTML is not a programming language, meaning it doesn't have the ability to create dynamic functionality. Instead, it makes it possible to organize and format documents, similarly to Microsoft Word.

When working with HTML, we use simple code structures (tags and attributes) to mark up a website page. For example, we can create a paragraph by placing the enclosed text within a starting ** ** and closing ** ** tag.

Below is an example of HTML used to define a basic webpage with a title and a single paragraph of text.

```
<html>
<head>
<title>gjust.org</title>
</head>
<body>
<p>This is an example of a paragraph in HTML.</p>
</body>
</html>
```

HTML5 is the latest version of Hypertext Markup Language, main features of HTML5 include:

- Elimination of outmoded or redundant attributes.
- Offline editing.
- The ability to drag and drop between HTML5 documents.
- Messaging enhancements.
- Detailed parsing
- MIME and protocol handler registration.
- A common standard for storing data in SQL databases (Web SQL).
- Application program interfaces (API) for complex applications.
- Accommodations for mobile device app development.

- Support multimedia embedding

6.3.5 DNS AND JAVA

The domain name system (DNS) connects URLs with their IP address. With DNS, it's possible to type words instead of a string of numbers into a browser, allowing people to search for websites and send emails using familiar names. When you search for a domain name in a browser, it sends a query over the internet to match the domain with its corresponding IP. Once located, it uses the IP to retrieve the website's content. Most impressively, this whole process takes just milliseconds.

- IP addresses help locate a computer on the internet and relay the information (website data, emails etc) traveling between computers. As soon as you type a domain name, for example, gjust.org into your browser, your browser, and computer check if one of them has the domains related IP address in their memory.
- If gjust.org isn't in your computer's local memory (cached memory), it expands the search out to the internet where it queries the DNS to determine if the domain exists in their DNS database. If the first DNS doesn't find it on its server, it sends it to the next server until the right domain name server is found. For example, the URL for gjust.org is associated with servers run by GJU Web Services. The domain name system allows you to reach GJU's servers when you type gjust.org into your web browser.
- Once the DNS server finds the domain name gjust.org, the server returns the domain name, and it's IPS address to the requesting DNS server, along down the line until it arrives back at your computer.
- Once the IP address has reached your computer, your browser finds it on the internet. Next up, it communicate with the domain name hosted to request any associated files. The host server returns the files which display gjust.org in your web browser.

JAVA SCRIPT

JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

CLIENT-SIDE JAVASCRIPT: Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser. It means that a web page need not be a static HTML, but can include programs that interact with the user, control the browser, and dynamically create HTML content. The JavaScript client-side mechanism provides many advantages over traditional CGI server-side scripts. For example, you might use JavaScript to check if the user has entered a valid e-mail address in a form field.

The JavaScript code is executed when the user submits the form, and only if all the entries are valid, they would be submitted to the Web Server. JavaScript can be used to trap user-initiated events such as button clicks, link navigation, and other actions that the user initiates explicitly or implicitly.

ADVANTAGES OF JAVASCRIPT

The merits of using JavaScript are –

- Less server interaction − You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- Immediate feedback to the visitors − They don't have to wait for a page reload to see if they have forgotten to enter something.
- Increased interactivity − You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- Richer interfaces − You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

JAVASCRIPT DEVELOPMENT TOOLS

To make our life simpler, various vendors have come up with very nice JavaScript editing tools. Some of them are listed here –

- Microsoft FrontPage − Microsoft has developed a popular HTML editor called FrontPage. FrontPage also provides web developers with a number of JavaScript tools to assist in the creation of interactive websites.
- Macromedia Dreamweaver MX − Macromedia Dreamweaver MX is a very popular HTML and JavaScript editor in the professional web development crowd. It provides several handy prebuilt JavaScript components, integrates well with databases, and conforms to new standards such as XHTML and XML.

- Macromedia HomeSite 5 − HomeSite 5 is a well-liked HTML and JavaScript editor from Macromedia that can be used to manage personal websites effectively.

JAVA

Web Applications are an integral part of any programming language and JAVA is the widely used programming language for developing web applications. The Java technologies used to create web applications are part of the Java EE platform. In order for these technologies to work on a server, the server must have a container, or web server, installed that recognizes and runs the classes you create. A web application often consists of nothing more than one page created with the JavaServer Pages (JSP) technology.

JAVA SERVLET API

The Java Servlet API lets you define HTTP-specific classes. A servlet class extends the capabilities of servers that host applications accessed by way of a request-response programming model. Although servlets can respond to any type of request, the most common use is to extend the applications hosted by web servers.

JAVASERVER PAGES TECHNOLOGY

JavaServer Pages (JSP) technology provides a simplified, fast way to create dynamic web content. JSP technology enables rapid development of web-based applications that are server- and platform-independent. JSP technology lets you add snippets of servlet code directly into a text-based document.

JDBC API

The Java Persistence API is a Java technology standards-based solution for persistence. Persistence uses an object-relational mapping approach to bridge the gap between an object-oriented model and a relational database. Java technology persistence consists of three areas:

- The Java Persistence API
- The query language
- Object-relational mapping metadata

6.4 CHECK YOUR PROGRESS

Note: 1) Use the space below for your answers.

2) Compare your answers with those given at the end of this lesson.

FILL IN THE BLANKS.

1. **……..**is a numerical label assigned to each device connected to a computer network and used for communication.
2. **…….**a set of routines, protocols, and tools for building software applications.
3. Full form of HTML is ……and the latest version of HTML is ……
4. ……..is a hierarchical and decentralized naming system for computers, services, or other resources connected to the Internet
5. ……..is a internet protocol provided by TCP/IP used for transmitting the files from one host to another.

6.5 SUMMARY

Each form of mass media affected society in important ways. Books allowed people to educate themselves and be more selective about the information to which they were exposed rather than relying solely on teachers or clergy. Newspapers chronicled the daily life of societies and provided a public forum for information sharing and debate. Magazines were the first medium to make major advances in the mass printing of photographs, which brought a more visual medium to their audience before the advent of television. Radio allowed masses of people to experience something at the same time, which helped create a more unified national identity and also brought entertainment and news programs into people's homes. Television copied many of radio's ideas and soon displaced the radio as the centerpiece for entertainment in people's homes. The Internet brought a new decentralized and communal form of media that could not be controlled by any one government or business and allowed for the creation of user-generated content.

Electronic media especially has had to adapt as new forms of media are invented. Radio, for example, lost much of its advertising revenue to television, which led radio to adapt its programming from news and entertainment to broadcasting music. Radio also took advantage of new technologies to become portable and follow people out of their house. Broadcast television had to diversify its program lineup as cable and satellite providers offered many more channels. All these media, even print, had to adapt to the advent of the digital age. Copyright violations—pirating—become a problem when old media content is digitized, which makes it more easily reproducible and sharable.

In earlier days messages were communicated by personal contact, beating of drums and shouting into a megaphone or through traditional media like folk dramas, folk songs, puppetry and even the village Panchayat served as a means of communication. Now with the technological advances newer and faster methods have been innovated. The transmission to remote parts of the country is done through the satellite. This is why national events like the Independence Day and Republic Day celebrations can be viewed all over.

Satellite transmission has symbolized a revolution in communication technology. It has enabled man to conquer distance in that we can make long distance calls to other countries. An other saving factor is time. With the latest telefax system one can telex an entire letter in a short:time to different countries. Web technologies gives us a way to interact with hosted information, like websites. Web technology involves the use of hypertext markup language (HTML), HTTP, DNS, FTP, JAVA.

6.6 KEYWORDS

API: An application program interface (API) is a set of routines, protocols, and tools for building software applications. Basically, an API specifies how software components should interact.

GUI: A GUI (graphical user interface) is a system of interactive visual components for computer software. A GUI displays objects that convey information, and represent actions that can be taken by the user.

Telnet: Telnet is an application protocol used on the Internet or local area network to provide a bidirectional interactive text-oriented communication facility using a virtual terminal connection.

IP: An Internet Protocol address (IP address) is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. An IP address serves two main functions: host or network interface identification and location addressing.

6.7 SELF-ASSESSMENT TEST

1. What is a protocol? Why we need protocols?
2. What protocols we use in Web technologies?

3. Write a basic code in HTML lagurage. What is the latest version of HTML?
4. **Write short note on FTP, IP, Internet Service Provider, JSP.**

4.8ANSWERS TO CHECK YOUR POGRESS

1. Interent Protocol
2. API
3. Hyper Text MarkUp Language & HTML 5
4. DNS
5. FTP

4.9 REFERENCE SUGGESTED READINGS

1. https://www.eolss.net/Sample-Chapters/C04/E6-33-03.pdf
2. https://2012books.lardbucket.org/books/a-primer-on-communication-studies/s15-media-technology-and-communica.html
3. http://iml.jou.ufl.edu/carlson/History/videotex.html
4. http://iml.jou.ufl.edu/carlson/history/teletext.html
5. https://www1.udel.edu/edtech/multimedia/index.html
6. https://techdifferences.com/difference-between-web-page-and-website.html
7. https://www.seomining.com/internet-web-technologies/module4/protocols-used-for-web.php
8. https://www.hostinger.in/tutorials/what-is-html
9. https://www.namecheap.com/dns/what-is-dns-domain-name-system-definition/

SUBJECT: COMMUNICATION AND INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 7	VETTER: PROF. HARISH ARYA
MEDIA TECHNOLOGY:SOCIAL NETWORKING SITES AND WEBPORTAL	

STRUCTURE

7.0 LEARNING OBJECTIVES

After reading this lesson, you must be able to:

- **Learn the basic of social networking sites.**
- **Introduce with the origin and features of social networking site Facebook.**
- **Introduce with the origin and features of Twitter.**
- **Know the origin and features of mobile application WhatsApp.**
- **Understand the technology of web portals.**

7.1 INTRODUCTION

Today most of the time we are living in a virtual world.The dependency on technology has been increased in last two decades and the consumption of various media channels too. Websites, Social networking sites and other mobile application taking our most of the time in a day on internet. So, traditional media channels are turned to online media. News, entertainment and sports channels are now turned into mobile application. This paradigm shift in technology make mass behaviour more rigorous.People are using various social networking application to foster the need of information and entertainment. So hereby, it is important to understand about the famous social media sites as a part of online media channels.

After go through this chapter you will learn about the basic technology and the structureof social networking sites - Facebook, Twitter, WhatsApp, Skype and web portals, used as tool of mass communication. You will also learn the basic features provided by these applications to produce and share content online

7.2 INTRODUCTION OF SOCIAL NETWORKING SITES

Social networking operates on many levels, from families up to the level of nations. Play a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals. The shape of social networking sites helps to determine a network's usefulness to its individuals.

Social networking sites, a new phenomenon that attracting million of the peoples to adopt the new technology through web 2.0. Social network enables individual to shape his inner tendencies. Connection with a variety of people may help in formation of new characteristic around people's social life. Social networking sites such as Youtube, Facebook, Twitter, Linkedin, Whatsapp, Instagram etc. integrated by people into their daily life. The great strength of social networking are the multiple ways the user has to interact. Social networking provide member with an easy and convenient medium for communicating with family, friends and other.The social networking technology became simple by latest android operating system in smartphones.

7.2.1 FACEBOOK

Facebook is a social networking site, commonly a platform to meet with new people online. Facebook has been widely popular with around one billionactive users in the world. The site has been one of the social media channels to disseminate information, opinions, new ideas and personal thoughts. Every single individual who is associated with internet is also known about this application. It is very easy to connect with Facebook for people with a single e-mail or mobile number. Facebook give platform to millions of the people to meet their family members, friends, peer groups or business organization. Through a profile everyone could connect of the people, also can make advertisement, business, social pages. Facebook secure posts, user information and timeline of the user in data base centre. Three languages are used by Facebook server to encode the data -C ++, PHP (as HHVM) and D language. Different languages work together to compile the data and make it easy to use.

7.2.2 ORIGIN OF FACEBOOK

Facebook was invented by an American college student Mark Zukerberg in 2004, just to interact online with his peer group. In a short period of time the site has gained so much popularity. Now, everyone can connect on Facebook through e-mail id or mobile number and interact with anyone around the globe.The site gives variety of features to develop and share the audio-visual content with other users. Facebook changed the online behaviour of the people through social interaction. From its origin this site has become so popular that millions of users mark their presence on the site. According to Statista(2020) report,Facebook has around 347 million active users. Facebook is a social media channel working on website and mobile application.

7.2.3 FEATURES OF FACEBOOK

Facebook is a platform where a profile user may connect online withanother person. The technology enables the users to form content through text, audio and video format in any language. Because of the user-friendlyfeatures, it is very easy to access online profile of other individual or any content related to persons companies. The features of Facebook are very interactiveand give…

1. **Friends-** You simply can add a person to send a friend request to the other profile users. It is very easy process to connect and build online relations. If the other person accepts your request you will be able to see his/her post in our news feed.Facebook

gives you the opportunity to meet with your friends, family members and unknown persons online.

2. **Public-** Facebook has the feature to show your post to anyone you are using the application. It is your choice to whom you want to share the content. Most of the users make their content custom to show only with friends they added to their profile, but if you want wider reach and publicity you can make your content public. This is a best to link with anonymous people online.
3. **Profile-** To connect with people online we have to make a online identity on social media sites. Every social networking site gives users to make their profile by sign in through email or mobile number. This is most fascinating feature of Facebook because it is a self-presentation tool to interact with others. Profile of the user contain profile picture, educational, work and other domestic details of the user. You have to maintain the profile according to your needs on online. For example – if you are using it for personal purpose, you have to keep your information private and if you want to use it for wider prospective you need to open up the basic details.
4. **Timeline-** One of the reasons behind Facebook's popularity is its timeline feature. It is the most attractive feature for the users,itgives you the space to interact with your online friends to showcase yourself. This space has been used to disseminate information, personal content, marketing, advertisingand business purposes. On timeline, we can write content, share other user's content by text, audio or audio - visual format. Other users can also write on your timeline if you allow them.
5. **News feed-** News feed is like a notice board to carry current updates from the people you connected with. News feed on your Facebook profile show what your friends post. It is the place where we get information about what happening around us?. News feed contain individual as well as groups posts, advertisement, and page like suggestions.
6. **Audio & Video sharing-** Facebook is one of the first site enable to post text, audio and video files simultaneously. People shared their emotions, thoughts and information through different format. Specially, video sharing has become a milestone in the history of social networking sites. Short length videos get much popularity through Facebook. A user can easily post HD Video on his profile in MP4 or MOV format.The maximum length is 120 minutes. The maximum file size is 4.0 GB.

7. **Comments & like-** Posts on any social networking site gets popular when users like, comment and share a particular content. If the post liked by many users its become viral content. Some post are highly recommended to users. Comment on a post by other user have different varieties, user give their opinion on post. Nature of comments is very important for any post.
8. **Messenger-**Facebook messenger is a messaging application where Facebook users can connect privately to another user. It is a personal chat room. A user can also make group chat to engage more then one user. Messenger has all the features of content sharing. Video gaming has become very popular through Facebook messenger like – Candy crush etc.
9. **Facebook live-** In recent years, Facebook gained the highest popularity by Facebook live. This feature is very amazing and attractive. People can go live from anywhere just with a good speed of internet. Users apply this feature.

Limitation of character length

Facebook post character limit: 63,206 characters

Facebook username character limit: 50 characters

Facebook Page Description: 155 Characters

Facebook Comments: 8,000 Characters

7.3 TWITTER

Twitter is a microblogging site on which people can post text message and images. This is a platform to share message in few words to understand quickly by the users. Microblogging means 'share short messages with the public having connect list' (Fuchs, 2017). Sharing SMS online to a large number of people.The post on twitter is called 'tweets'.

7.3.1 ORIGIN OF TWITTER

Twitter was launched by Jack Dorsey, Noah Glass, Biz Stone, and Evan Williams in 2006. Tweets were originally restricted to 140 characters, but was doubled to 280 for non-Asian languages in November 2017. Twitter has 13.15 million users in India competing with Facebook and other social networking application (statista,2020). Many of the world

organizations are using twitter profile as their official statements and information. It has also become a source of news for many media channels.

7.3.2 FEATURES OF TWITTER

1. Microblog – Twitter is a micro-blog application where only with few words we connect with the other users. It very easy to use because user post short public messages. It is an instant information sharing website so that user can get it on time. Micro blogs are famous worldwide like -twitter and Weibo.

2. Following- Twitter enable its users to follow person with a username and password. The user can send follow request to other users and if the other user accept, they added in eachother list. A user can fellow any media channel, personalities, business tycoons or any common person who have a twitter account.

3. Retweets-On twitter timeline we tweet our messages by text, images of video files. We can retweet other's post in own timeline. Every tweet has a record of how many times its being retweeted. This a good way to share information to the large audience.

4. Twitter Trends-Most popular term in social media world in present scenario is 'trending'. Twitter has the facility to trend most searched topic at first. Trending topics become popular either through a concerted effort by users or because of an event that prompts people to talk about a specific topic. Every latest information on socio-political topic, news , current event and even big story gets popular by trending on Twitter. Many videos go viral because of the twitter trending search options.

5. Create polls-Another excellent feature of this site is to create polls. A user can ask question to the other users by simply ask a question on twitter. The result of the poll automatically saved by the site. This feature is highly successful in the time of election and something for public opinion on a serious issue.

6. Bookmark- One the best feature of twitter is bookmarking where we can save a post for later view. Bookmark gives us to save the important data so that we can apply it according to our requirement.

7. Hashtag- This feature played a big role in promoting social media campaigns for marketing purposes and for political propaganda. Hashtag is a certain flagging of an event

that created by the user to be in the top on search with their thought or idea. For example- #photography, #birthday, #beautiful etc. are used to be in the search of such kind of words.

7.3.3 WHATSAPP

WhatsApp is a free messaging application available on smartphone having android technology. This application allows users to send text, image, audio and video messages to individual or in group. The nature of this application is basically interactionbetween one to one, but it is also giving the facility to communicate to group at the same time, that's why it is also called social networking application. WhatsApp is launched in 2009 by Brian Acton and Jan Koum, former employees of Yahoo. WhatsApp is accessible from desktop also with smartphone connected to the computer and an internet connection. It allows users to chat with text messages and voice messages,video calling, and pictures, documents, maps, audio and contact number.

7.3.4 FEATURES OF WHATSAPP

1. Text Messages- WhatsApp messenger is a free application where you can send unlimited messages per day. It gave users to chat with your friends, family member via text message. On mobile we used SMS and these SMS's were not fee at all. So because of this application communication through chat became more popular specially in youth. WhatsApp chats are being used for personal and non-personal chats.Maximum limit of WhatsApp message is 65,536 characters

2. Photo and video sharing- Photograph and video can be sent through WhatsApp easily. After the advent of this application photo & video sharing has increased. We can send any JPEG file or MP4 video file to anybody in few seconds it only hindered by your internet connection speed. Image and video sharing of personal moments, talent and arts create a new dimension to Visual communication. We send our personal pictures; we share official documents and news events in short length videos.

3. Group chat- We can make group of the people on WhatsApp for different purposes. WhatsApp Group is a platform where information can be shared with many people at their personal phone number.

Different social, personal and professional groups are there to interact with people. We can make a group with our connects only where admin play the lead role. Text messages, photo and video messages are allowed to share in group. The WhatsApp settings allow a admin to remove or add any member in the group.

4. Voice & video call messages- You can talk to your friends and family for free, even if they're in another country. And with free video calls, you can have face-to-face conversations. WhatsApp voice and video calls use your phone's Internet connection, instead of your cell plan's voice minutes, so you don't have to worry about expensive calling charges.

5. WhatsApp on desktop and Web- WhatsApp on the web and desktop, you can seamlessly sync all of your chats to your computer so that you can chat on whatever device is most convenient for you. You can download separate Application for Windows and iOS, while for WhatsApp web link is provided as "web.WhatsApp.com". User can only access these apps if WhatsApp is installed on validated devices through mobile number activation.

6. Using Google search & translate - Another exciting feature of WhatsApp is the direct googlesearch option and google translate option with keyboard. You can simply translate your text in any language while typing. Google search enable you to find anything with just entering the keywords and share on WhatsApp chat box. Language translation from one language to other is a time saving method for any user who do not know about the other language. For example- if you want to translate from English to Hindi, just type in English in your chat box it automatically converted in Hindi.

7. End to end encryption- Some of your most personal moments are shared on WhatsApp, which is why we built end-to-end encryption into the latest versions of our app. When end-to-end encrypted, your messages and calls are secured so only you and the person you're communicating with can read or listen to them, and nobody in between, not even WhatsApp.

8. User location- This feature attributed to share any location available on google maps. Live location can be sent to other than self with time limits of 15 minutes, 1 hour and 8 hours.

9. Document- You can send PDFs, documents, spreadsheets, slideshows and more, without the hassle of email or file sharing apps. You can send documents up to 100 MB on WhatsApp. These documents can be attached from your phone or computer easily.

7.4 WEB PORTAL

The term "**Internet portal**" or "**Web portal**" began to work in 1990's and used to describe the websites of any organization that included a single access point to surf the web. These web portals were called horizontal portals as there was a limited access to the users. It was not a user-centric, as the content was personalized by the users itself.

The Different type of web portal has been developed after that and used for different context. Initially the 'web portal was used to refer to well-known internet search and navigation sites that provided a starting point for web visitor to explore and access information on world wide web.[4]

Web portals are the gate way of the web- access for the interconnected links on a website. Web is the information delivery system for the internet users that deliver the general information with a URL. Earlier, the web portals were designed in HTML (Hypertextmarkuplanguage).

Iflooking close for an exact definition of the web portals -Howard Strauss explained it firmly by adding that- 'a portal is a user-centric customized, personalized, adaptive desktop (CPAD). The very best enterprise portals will exhibit all CPAD features'.[5]

7.4.1 BROWSING AND SEARCHING ON WEBPORTLS

If you look around, you recognize that so many of people are using internet, searching websites and looking for somewhat different information. This searching is occurring through uncountable number of pages of websites displayed on the Internet. You can view this information with the help of a 'web browser'. it a software application that used to locate web pages or a window that allows you to view online content for example - Internet Explorer, Mozilla Firefox, linx, Safari, Opera and Google Chrome.

One of the popular web browserswe are using today is Google chrome launched in 2008. Google Chrome has dominated the internet browser market for the last decade with a staggering near-60% market share and users stretching into the billions.[7]

To open a web page, one must type the URL(Uniform resource locater) and the URL species the address of web server.

It is an information-sharing tool that is growing at an unbelievable rate .Because there is so much information on the Internet, and so many individual sites and pages, it would be nearly impossible to find what you were looking for by just "browsing" or flipping through sites, not only because of the sheer size of the collection, but also because you wouldn't know what address to go to.

To deal with this, we use a web browser to access a search engine which allows us to search for a particular topic, word, or phrase[8].

SEARCHING WEB

Search engine is required to surf the websites on any browser. A search engine enables individual to discover specific information within the huge world of data that's stored on the internet. It's usually a dedicated website, but it also may take the form of an application on a hand-held device or simply be a 'search window' on a website that can be about almost anything.

Searching starts with typing words into the searching box on the home page of any search engine such as Google , Yahoo, Bing etc. By clicking on Search button, a page will appear containing results of the keywords that contains links to various web pages. All these web pages will be related with the key word we type on the box. These results, commonly known as 'hits', will usually be listed in order of relevance to the exact terms entered. Some search engines even display results that are tailored to your previous search activity.

Difference between Browsing and Searching

Browsing	**Searching**
Browsing is done using web browser.	Searching is done using a search engine.

Browsing is targeted on particular websites, as user knows where to look what is required.	Searching is random and most popular/relevant searches shows the user the website he/she need to visit.
Browsing is faster and easy.	Searching is slow and tough process.
Using browsing, information is cantered towards one topic.	In Searching, results are cantered towards multiple topics
Browsing is process of reading with target.	A Searching is process of studying without explicit target.
A browsing is less satisfactory than surfing as surfing need lots of information sources to be visited.	A Searching is more satisfactory

7.5 CHECK YOUR PROGRESS

Note: 1) Use the space below for your answers.

2) Compare your answers with those given at the end of this lesson.

CHOOSE THE RIGHT OPTION.

1. Today the most popular social networking site is?
   a) Twitter
   b) Facebook
   c) Linkidin
2. Which one is the most famous mobile messaging application?
   a) Telegram
   b) Facebook Messenger
   c) WhatsApp
3. Which one of the following is a Microblogging site?
   a) Blogger
   b) Twitter
   c) Wordpress
4. Which is the primary language for Web portals?
   a) XXLM
   b) HTML
   c) JAVA
5. Identify the name of search engine from the following
   a) Internet explorer

b) Google chrome
c) Bing
d) Mozilla

7.6SUMMURY

This chapter concluded the basic of new media technology that are used in new communication system. These technologies are easy to use and affect most of the people behaviour. Facebook is attracting most the users for all personal and professional relations. Twitter has been using for the purpose of official statements and WhatsAppgets popularity by personal chatting and group activity online. All these new technologies has various different features to use properly. You also learned about the webportals and their working. Basic understanding is important to understand the concept thoroughly. This chapter gives insights to the media technology.

7.7 KEYWORDS

Micro-blog- Microblog means 'share short messages with the public having connect list'.

Hashtag- a word or phrase in type of metadata tag share with '#' sign on social networking sits is called hashtag. Hashtag is used for different social media campaign.

Tweets-means chirp of a small bird, but for 'tweet' now is used for twitter posts because these posts has few words limit.

Encryption- When your messages and calls are secured so only you and the person you're communicating with can read or listen to them, and nobody in between, not even WhatsApp.

7.8 SELF-ASSESMENT TEST

1. What is the role of Facebook to connect people?
2. Describe the features of Twitter?
3. What is the most fasinating feature of WhatsApp?
4. What is the difference between web portal and wesites?
5. Give name of five famous browsers?
6. Give name of five famous search engines?

7.9 ANSWERS TO CHECK YOUR PROGRESS

1. Facebook
2. WhatsApp

3. Twitter
4. HTML
5. Bing

7.10 REFERENCES/SUGGESTED READINGS

1. Arthur Tatnall (2005). 'Web Portals: The New Gateways to Internet Information and Services'. Pub: idea group publishing. <https://books.google.co.in/>
2. Christian Fuchs (2017). 'Social Media : A critical introduction'. Pub: Sage
3. Howard Strauss. ().' Web portals: the future of information and distribution.
4. https://herrickdl.org/sites/default/files/documents/internetbasics.pdf
5. https://www.forbes.com/sites/billybambrough/2020/04/09/billions-of-google-chrome-users-now-have-another-surprising-option/#61aa10e248ee
6. https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/
7. https://www.statista.com/statistics/304827/number-of-facebook-users-in-india
8. https://www.tandfonline.com/doi/pdf/10.1300/J123V44n01_04
9. https://www.tutorialspoint.com/difference-between-browsing-and-surfing

SUBJECT: COMMUNICATION AND INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 8	VETTER: PROF HARISH ARYA
E-COMMERCE: BUYING, SELLING & ADVERTISEMENT	

STRUCTURE

8.0 LEARNING OBJECTIVES

After go through this lesson you will be able to:

- **Understand the concept of E-commerce.**
- **Know about main element of 5'C model of E commerce.**
- **Learn the nature of selling using your own website.**
- **Learn the nature of buying using your own website.**
- **Understand e-banking concept and E- advertisement's process.**

8.1 INTRODUCTION

E- Commerce is developed in online environment with retailing of various product & services. Advertisers have found various ways to promote their products and services through online advertising since the rise of the Internet. Social networking sites has been helping for the growth of online sites, and attracts large number of visitors.

Advance digital marketing offers new opportunities to target consumers in increasingly personalized ways. Branding and direct sales are the main reasons for the companies to stay online. Branding of a product can increase the value of product. Direct selling tries to persuade the consumer for an immediate action, by clicking the advertisement.

Online companies gaining high ad revenues by their services and people are using the online services for their day to day needs. The popularity of online companies can be measured by their revenues per year.

Social networking provides unique opportunities where brand can target their audience and interact with user with a powerful impression. On Facebook, people express their unique identities and have a chance for the advertiser to collect the details of potential consumer. That will increase the interaction between the two and more targeted way to connect for the better responses.

E-commerce is an effective marketing platform because networking and communication are already taking place. This allows companies to be directly woven into conversations simply by appearing on the website.

8.2 COMMUNICATION TECHNOLOGY AND E-COMMERCE

Modern communication and information technologies can enable changes in organization structures and business processes, and they affect the competitive advantage of firms. Under their influence, markets gain increasing importance as a coordinating form. But due to the increasing use of modern telecommunications media, the market and events within market structures are also changing. The drivers, nature and magnitude of these changes are focal points and promoters of electronic commerce and are addressed in this contribution.

For example, electronic data interchange (EDI) and electronic mail are the underlying commercial tools of the operation of electronic commerce. Nevertheless, it is impossible to trade on EDI without contractual agreement. Both EDI and electronic mail can today be

viewed as value-added network services, and they allow the user to substitute electronic forms for their paper-based counterparts.

The emerging strong interest in the Internet and mobile technology, as well as the frenzied trend, has led the attention of businesses around the world at key industry conferences such as relevant business literature, activity on the Internet and annual industry conferences to find a role, presence or niche marketing idea.

With the advent of the Internet and smartphone industry a new medium has emerged whose potential is more dynamic than traditional colour printing, radio, or television. The appeal of such universal connectivity and access is driving firms to the mobile applications. It appears that all this focused interest, current developments, and apparent perceived importance by the business world.

8.2.1 DEFINITION OF E- COMMERCE

E-commerce refers to activity of buying and selling of products, goods or services over electronic systems such as the internet and other computer networks. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, Electronic Data Interchange (EDI), inventory management systems, and automated data collection systems. E-commerce businesses

Online shopping web sites for retail sales direct to consumers

- Providing or participating in online marketplaces, which process third-party business-to-consumer or consumer-to-consumer sales
- Business-to-business buying and selling
- Gathering and using demographic data through web contacts and social media
- Business-to-Business (B2B) electronic data interchange
- Marketing to prospective and established customers by e-mail or fax (for example, with newsletters)
- Online financial exchanges for currency exchanges or trading purposes

To come to the conceptualize the term 'E-Commerce' let us discuss about some attributesof E-Commerce. Digitalization of business is important to stay in the field. This means a comprehensive usage of Information & CommunicationTechnology (ICT) required within a business organization.Usage of a global network like Internet plays a dominant role and has become a universal technical infrastructure to build e-commerce virtual space where every organization and person beinginterested in making business and come together without geographical restrictions.

8.2.2 E-COMMERCE WITH THE "5-C-MODEL"

One of the significant approaches to define and explain the E-Commerce iscomes from the so-called5-C-model (Zwass 2014). It defines E-Commerce by five activity domains whose denominationsstart with the letter "C". This 'C' is related with commerce, collaboration, communication,connectionandcomputation.

1. Commerce: The electronic marketplace combines customers and suppliers, a establish transaction conditions, and facilitate exchange transactions. Comprehensive move to web-enabled enterprise systems with relatively uniform Capacities, compared to legacy systems, are a universal supply-chain linkage has been made.

2. Collaboration: The Web is a vast nexus, or network, of relationships among firms and individuals.More or less formal collaborations are created or emerge on the Web to bring togetherindividuals engaged in knowledge work in a manner that limits the constraints of space, time, national boundaries, and organizational affiliation.

3. Communication: As an interactive medium, the Web has given rise to a multiplicity of media products.This universal medium has become a forum for self-expression andself-presentation through social media.The rapidly growing M-Commerceenables connectivity with consumers via targeting through different social networking sites, locations and many other sensitive login details for advertising.In the communications domain, the Web also servesas a distribution channel fordigital-products.

4.Connection: Common software development platforms, many of them in the open-source domain,enable a wide spectrum of firms to avail themselves of the benefits of the already developed software, which is, moreover, compatible with that of their trading and collaboratingpartners.The Internet, as a network of networks thatis easy to joinand out of which it isrelatively easy to carve out virtual privatenetworks, is the universal telecommunicationsnetwork, now widely expanding in the mobile domain.

5. Computation: Internet infrastructure enables large-scale sharing of computational and storage resources, thus leading to the implementation of the decades-old idea of utility computing. An additional term is also there called M-commerce commonly understood as the usage of mobile applications for buying and selling of products online.

- Main features of M-Commerce are:

  Location independence of (mobile) customers,

  High availability of services through well-established mobile phone networks,

  Increasing computing power of mobile devices,

  Interactivity of mobile devices (voice and data transfer),

  Security (when using mobile phone networks),

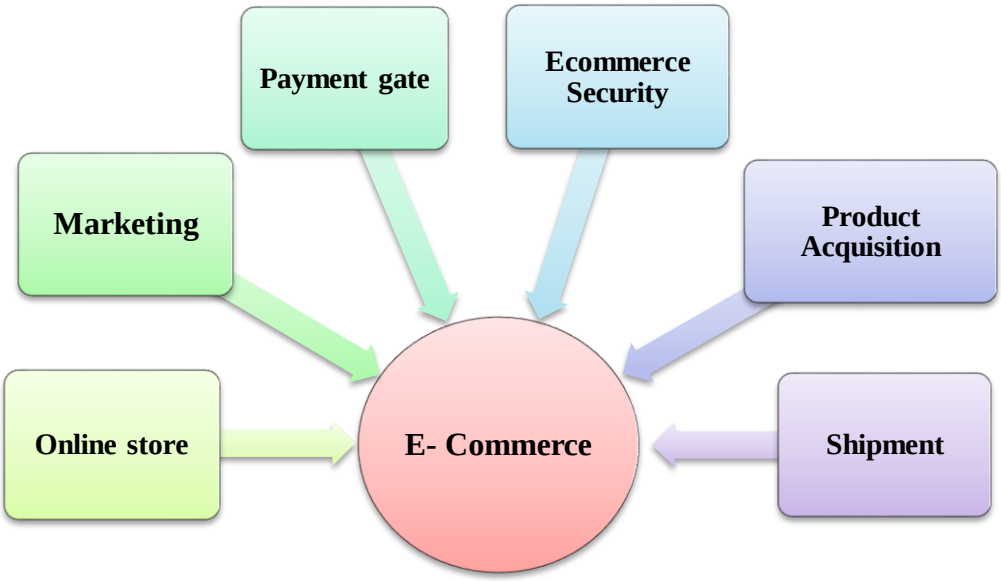
  Localization of customers through cell structure,

  Accessibility of customers,

  Potential of personalized services/offers.

8.2.3 BASIC ELEMENTS OF E-COMMERCE

E-commerce is associated with so many sub-sections of offline business. There are various tools to upgrade the business into new technology. To start anonline business needs all the legal and administration formalities as well as the main tools internet related with customer buyer relations. The basic element to plan a new start up online needs some understanding of the following measures:



1. **Online Store:** E-commerce website is the most important aspect of any company who wish to deal with customer online. Similarly, well organized and standard ecommerce website could transform visitor into buyer. Obviously, website is the core for an online business, as it the main platform of connection between buyer and supplier. They can exchange their interest with each other on the site. Supplier of website target their customers by their choice of interest using their search history. A well portrayed and impressive website with images and detailed specification can help the potential customer to take decision whether to buy the product from that site or not.
2. **Online and Offline Marketing:** Marketing and advertising tools can be used carefully to grab the attention of potential buyers in online stores and help them convert into buyers. Currently, Search Engine Optimization (SEO)and Pay Per Click (PPC), Social platforms such as Facebook, Twitter, LinkedIn and YouTube are used as tools of online advertising and these media played a significant role in customer retention and acquisition. Traditional advertising tools such as brochures, hoardings, pamphlets can also help to persuade customers' mind to take a positive decision regarding online buying.
3. **Payment Gateway (Online Transaction):** A payment gateway is a method of transacting money online when purchasing any product or services on the Internet. Initially credit card was the most accepted method of online payment.

But later, other means of payment such as PayPal, Payumoney, razorpay, billdesk, cavenues and citrus have been integrated in virtually all e-websites. Now, Cash on Delivery has gained immense popularity among online buyers. Other offline modes such as bank transferi.e RTGS, IMPS, demand draft and cheques, etc are also accepted for making payment in ecommerce website.

4. **Ecommerce Security:** The importance of online security system in the website is as important as having a security guard in front of a showroom or ATM. If your website gathers personal information from your customersonline account, it is mandatory to use security systems like SSL (Secure Socket Layer). This secure server software encrypts all sensitive information and protects the data against unauthorized access and disclosure. After installing of a security system, a company can ensure your customers about the security of personal data.
5. **Product Acquisition:** Product acquisition is the core segment of an e-commerce organization. This is the basic requirement to develop an e-business organization or any other traditional organization. Initially, you need to get products for your business then you can plan for optimal growth and development of the organization.
6. **Shipment:** The time has come to process your online order and you will have to deliver it to the end users. At that time, you need a reliable and professional shipment or logistic service provider who can safely deliver the product on time to the customer.

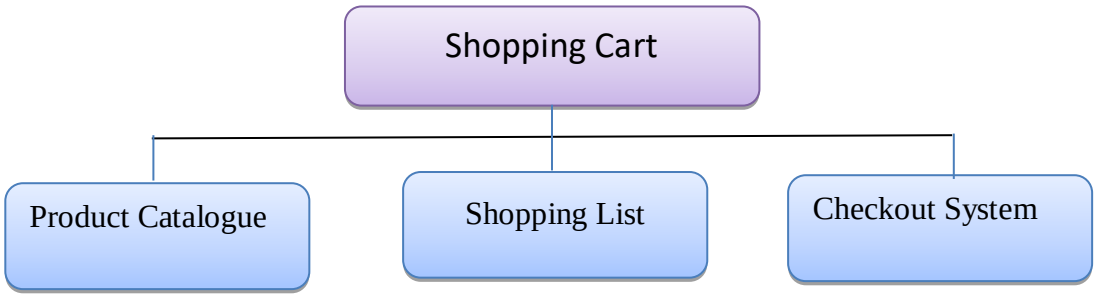
   Failing to meet or deliver the expectation at the stipulated time can result in loss or damage to the business or reputation of an ecommerce enterprise. Thus, the shipment method requires great discipline and automation to maintain high volumes of orders and trust for its customers.
7. **Customer Care Assistance:** Customer support is an important aspect of online business as it can win or ruin the trust of buyers. The seller-buyer relationship in online business incredibly depends on customer support services. High-quality customer care services can motivate, motivate and influence a customer or customer with their prompt and class support while poor customer support can prevent e-commerce sales.

8.3 ONLINE SELLING USING YOUR OWN WEBSITE

Setting Up an Online Store

For an online store all you need is a computer and a website page to connect the buyers. Online selling is emerged with the collaboration of the different market segment. Online store keeps these channels under one roof. In order to process an online sales transaction three things are needed.

1. **Shopping Carts**software keeps track of what the user selects to buy from the website before proceeding to the "checkout". An online shopping cart consists of three parts:



   a. **The product catalogue** is made up of all the information needed to present any product to the customer and to complete a sales transaction online. Information to be included in the product database generally includes the price, identification number (SKU), image or other multimedia information, product options or choices.

   A shopping list allows users to track the items they want to purchase. A shopping cart image is generally used to show what items the shopper has selected for purchase. In order for the shopping cart to function properly the user's computer must be set to allow "cookies". The checkout system allows customers to select products by clicking an "add items to cart" button and then enables them to pay for these products.

   b. **A shopping list** (i.e. list of selected products) allows users to track the items they want to purchase. A shopping cart image is generally used to show what items the shopper has selected for purchase. In order for the shopping cart to function properly the user's computer must be set to allow "cookies".

   C. **The checkout system** allows customers to select products by clicking an "add items to cart" button and then enables them to pay for these products.

2. **Secure Server** The secure server helps provide protection against the loss or modification of personal information. Secure Socket Layer (SSL) is the most commonly used technology for secure online transactions. SSL encrypts (or codes) all data between the shop's server and the customer's computer. This makes it very difficult for third parties to decode any information exchanged such as credit card numbers. The following diagram

shows how a secure server can protect information passed between the consumer and the merchant

3. **Payment Processing Options**There are three payment processing options:

A. Third Party Payment Processing Software.

B. Internet Merchant Account.

C. Manual (Offline) Payment Processing.

Some tips for Attracting and Keeping Online Customers

Effective marketing techniques and good customer service required you to attract and retain online customers. Some more tips for Attracting and Keeping Online Customers

- Offer returns policy in store.
- Time to time offer incentives and special discounts tocustomers.
- Prepare both on and offline marketing strategies to boost your online sales.
- Ensure timely shipping of products.
- Respond to customer queries & feedback timely.
- Make purchasing as easy and stress-free as possible for the customer.
- Clearly mention product details, so that buyer don't get confused.
- Provide online receipts for all transactions.
- Show stock availability and estimated delivery times.

8.3.1 ONLINE BUYING FOR YOUR OWN WEBSITE

An e-commerce website which sales services or goods has options to manufacture, stock or provide a product.

- A simple ecommerce website, often use a warehouse for themselves to store products. They buy product from distributors and wholesalers to get good rates. Then they put up those products on their website and do a stock update as and when sales occur. This practice is similar to a traditional offline business, only that they are selling over the Internet instead of having a physical retail shop. Also, there is additional burden of shipping of sold product.
- Moreover, there are ecommerce sites which adopt the "marketplace" model. They set up an e-commerce platform and allow other vendors to sell their products through the platform. These ventures would often provide for warehouses as well where the

vendors can store their product. Other facilities like shipping may be handled on behalf of the vendors as well.

- Third type of ecommerce website are those manufacture their product and sell them on their own website.
- Bigger e-commerce websites like Amazon &Flipkart uses a hybrid of the above models.

8.4 Banking and Advertisement: An overview

Banking is much needed part of ecommerce website because it is the only possible fastest way to get transaction done between two businesses and customers. While advertising is required to reach huge number of potential customers. Electronic banking laid the groundwork for speed and convenience in individual and commercial (business) banking.

The spread of personal computer use has added another layer of convenience and speed to the process. Electronic banking allows customers of most banks to do their banking at any hour of the day, regardless of the bank's operating hours. If customers choose to do such things as transfer funds or pay bills, they can usually do so from anywhere Internet access is available.

8.4.1 E- Banking

Electronic banking is a form of banking in which funds are transferred through an exchange of electronic signals rather than through an exchange of cash, checks, or other types of paper documents. Transfers of funds occur between financial institutions such as banks and credit unions. They also occur between financial institutions and commercial institutions such as stores. Whenever someone withdraws cash from an automated teller machine (ATM) or pays for groceries using a debit card (which draws the amount owed to the store from a savings or checking account), the funds are transferred via electronic banking.

Electronic banking relies on intricate computer systems that communicate using telephone lines. These computer systems record transfers and ownership of funds, and they control the methods customers and commercial institutions use to access funds. A common method of access (or identification) is by access code, such as a personal identification number (PIN) that one might use to withdraw cash from an ATM machine.

As online banking has become more sophisticated, banks have been formed that operate exclusively as electronic banks and have no physical storefront for customers to use. Without the costs of purchasing and maintaining physical "bricks-and-mortar" structures like

traditional banks do, online banks are able to offer higher interest rates on savings accounts (interest payments are fees that customers collect for keeping their money in the bank). Customers at online banks can use the Internet to conduct all the standard banking transactions.

8.4.2 Online advertisements by E-commerce

It is a form of marketing and advertising which uses the internet to deliver promotional marketing messages to consumers.

Online advertising is also known by several other names:

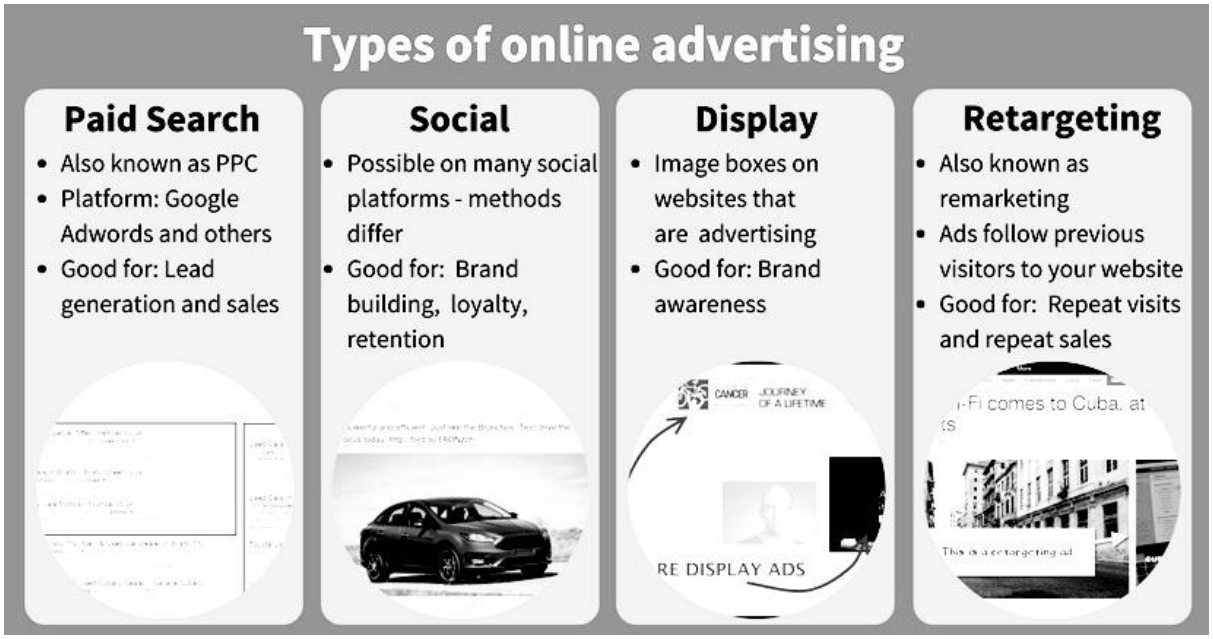
- Paid advertising
- Online marketing
- Pay-per-click (PPC)
- Paid channel marketing
- Internet advertising
- Web advertising

Whatever term you choose to use, online advertising is one of the most effective ways for businesses to expand their reach and find new customers.

THE MAIN TYPES OF ONLINE ADVERTISING

There are essentially two ways to attract visitors to your site: organic (or "free") traffic and paid for traffic, of which a large part is online advertising.

Within online advertising there are several options available, each of which is used in different circumstances, and across different platforms, to drive traffic to your e-commerce site. Although there are others, this high-level overview shows the main types of online advertising:

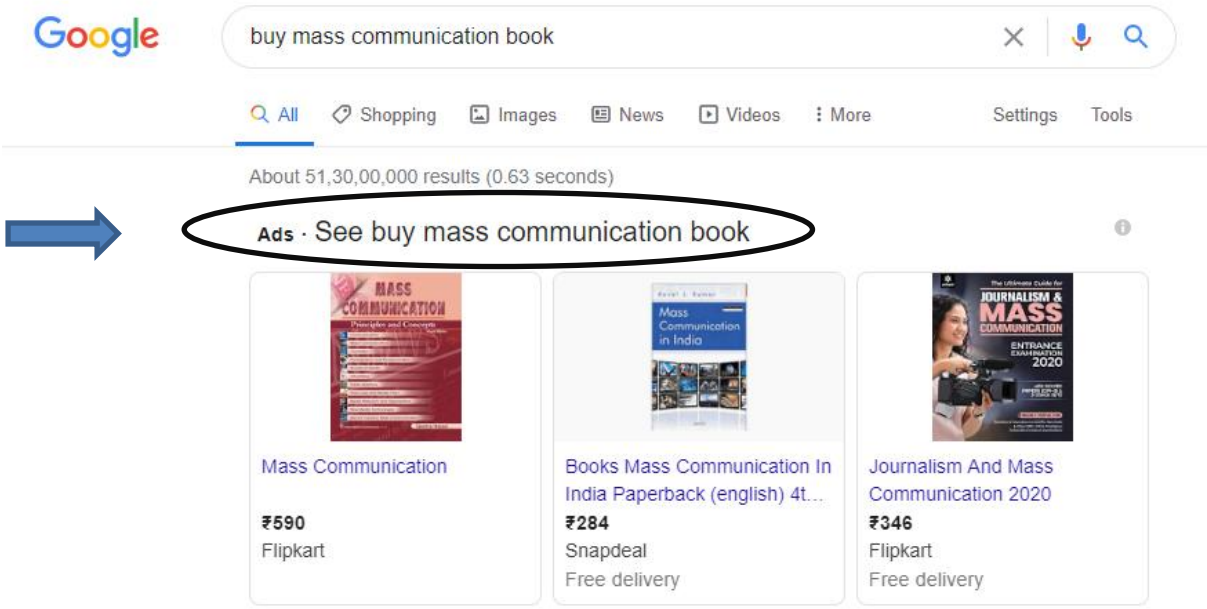


Pay-per-Click (PPC) advertising: Sometimes the industry refers to PPC as a type of ad, but rather it is a method of payment (you are charged when a visitor clicks on your ad). This option is available on many platforms, like Google Adwords, Facebook, Twitter, LinkedIn, YouTube and Instagram.

Paid options to drive traffic to your store

Online advertising collectively describes the channels or methods you can pay for to attract traffic to your site. Below we highlight 5 areas or 'channels' where you can make use of online ads to attract visitors.

1. Search engine marketing (SEM): Search engine marketing is the practice of raising awareness of a business using paid advertisements that appear on search engine results pages. You pay a provider like Google Adwords (which dominates this channel) to show your ad. Then when a user types their query into a search engine, relevant paid ads appear next to the normal organic search results. These organic results are generated by SEO (search engine optimisation), which works in a similar query-based way, but is not paid for. The main types of SEM are text ads, as shown in the picture below, product listing ads and shopping ads.



2. Social media channels: Social media advertising comprises the ads served to users on social media platforms. Because social networks have access to user information, they display highly relevant advertisements (i.e. based on specific interests, behavioural interactions and other custom targeting). You can advertise on:

- Social networks like Facebook, LinkedIn and Google+,
- Photo-sharing websites like Instagram, Snapchat or Pinterest
- Video-sharing websites like Youtube, Facebook live, Periscope or Vimeo
- Microblogging sites like Twitter or Tumblr

3. Price comparison websites: On Price Comparison websites, you have the option to (a) list your products, in which case you pay a fee when someone clicks on any of them, or (b) pay upfront to place an ad on the site.

4. Affiliate marketing: Affiliates are other individuals or businesses who recommend your products, and usually receive a commission for doing so.

5. Mobile marketing: The mobile market is on a huge upward trend and it offers several different types of paid advertising, from bulk SMSes or MMSes, to mobile search and proximity marketing.

8.5 CHECK YOUR PROGRESS

Note: 1) Use the space below to write your answers.

2) Compare your answers with those given at the end of this lesson.

1. Define E-Commerce with suitable example?

……

……

……..

2. What is online and offline marketing?

.....

.....

.....

3. What is Product Catalogue?

……

……

……

4. Discuss about E-banking?

……

……

……

8.6 SUMMARY

- To come to a conceptualize the term 'E-Commerce' let us discuss about some attributesof E-Commerce. Digitalization of business is important to stay in the field. This means a comprehensive usage of Information & CommunicationTechnology (ICT) required within a business organization.
- E-commerce website is the most important aspect of any company who wish to deal with customer online. Similarly, well organized and standard ecommerce website could transform visitor into buyer. Obviously, website is the core for an online business, as it the main platform of connection between buyer and supplier.
- A simple ecommerce website, often use a warehouse for themselves to store products. They buy product from distributors and wholesalers to get good rates. Then they put up those products on their website and do a stock update as and when sales occur.
- As online banking has become more sophisticated, banks have been formed that operate exclusively as electronic banks and have no physical storefront for customers to use. Without the costs of purchasing and maintaining physical "bricks-and-mortar" structures like traditional banks do, online banks are able to offer higher interest rates on savings accounts.

8.7 KEYWORDS

PPC- Pay Per Click

SEO - Search Engine optimisation

EDI- Electronic Data Interchange

8.8 SELF-ASSESSMENT TEST

1. Discuss in detail about e-commerce in India?
2. What is the basic element of E-commerce?
3. What do you understand about online selling?
4. Define the type E-advertisements?
5. Describe the process of online transactions?

8.9 ANSWERS TO CHECK YOUR PROGRESS

1. E-commerce refers to activity of buying and selling of products, goods or services over electronic systems such as the internet and other computer networks. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, and online transaction processing. The example of e-commerce sites are Amazon, flipkart, Snapdeal etc.
2. Marketing and advertising tools can be used carefully to grab the attention of potential buyers in online stores and help them convert into buyers. Currently, Search Engine Optimization (SEO) and Pay Per Click (PPC), Social platforms such as Facebook, Twitter, LinkedIn and YouTube are used as tools of online advertising and these media played a significant role in customer retention and acquisition. Traditional advertising tools such as brochures, hoardings, pamphlets can also help to persuade customers' mind to take a positive decision regarding online buying.
3. The product catalogue is made up of all the information needed to present any product to the customer and to complete a sales transaction online. Information to be included in the product database generally includes the price, identification number (SKU), image or other multimedia information, product options or choices.
4. Electronic banking is a form of banking in which funds are transferred through an exchange of electronic signals rather than through an exchange of cash, checks, or other types of paper documents. Transfers of funds occur between financial

institutions such as banks and credit unions. They also occur between financial institutions and commercial institutions such as stores.

8.10 REFERENCES

1. https://acowebs.com/impact-ecommerce-society/
2. http://www.emavens.com/web-development/10-essential-elements-of-an-ecommerce-enterprise/
3. Zwass, V (2014)Te Framework and the Big Ideas of E-Business, in: Martínez-López 2014, pp. 3–14.
4. https://www.klaviyo.com/blog/advertising-for-ecommerce
5. http://www.gov.pe.ca/photos/original/IPEI_ebiz_ecomm.pdf

SUBJECT: COMMUNICATION AND INFORMATION TECHNOLOGY	
COURSE CODE: MSM-502	AUTHOR: DR. KUSHAM LATA
LESSON NO.: 9	VETTER: PROF. HARISH ARYA
WEB PAGE DEVELOPMENT	

STRUCTURE

9.0 LEARNING OBJECTIVES

After go throw this lesson you will be able to:

- **Learn the technology of web page designing.**
- **Understand the difference between web page and website.**
- **Introduce the main component of web page designing.**
- **Know the basic of overall web page development.**

9.1 INTRODUCTION

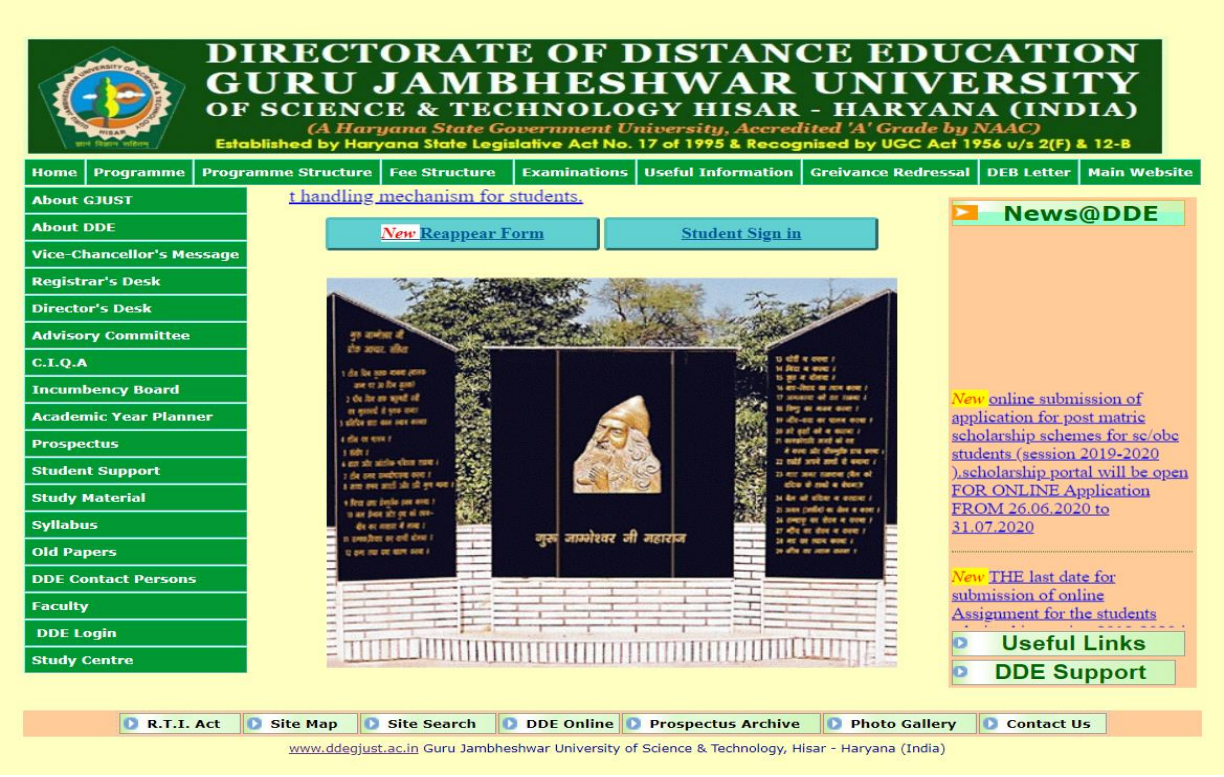
This lessonis to introduce the learner about the web page development. After the advent of the internet websites became the main source of information for all the internet users. In today's world the place where most people in most markets go is to the ‘internet’. We all know that websites are very important these days in capturing new customers.Web design is important because it impacts how your audience perceives your product, brand or service. The impression you make on them can either get them to remain on your page and learn about your business or leave your page and turn to a competitor. A good web design helps

you keep your leads on your page.Many web page design elements and practices influence how you share content on yoursite, which in turn affects how search engine index your website. Website is the representative of your company or business so it important to design it better to welcome on your page. So, let us first understand about the webpage formation.

9.2 INTRODUCTION OF WEB PAGE

A 'webpage' or 'Web Page' is a document, commonly written in HTML that is viewed in an Internet browser. A web page can be accessed by entering a URL address into a browser's address bar. A web page may contain text, graphics, and hyperlinks to other web pages and files.

A web page is often used to provide information to viewers, including pictures or videos to help illustrate important topics. A web page may also be used as a method to sell products or services to viewers. Multiple web pages make up a website, like our University's Website.



Should I use "Web Page" or "webpage" when writing?

Both versions are technically correct. However, most style guides suggest Web Page (two words) instead of Webpage in all forms of writing.

How to open a web page

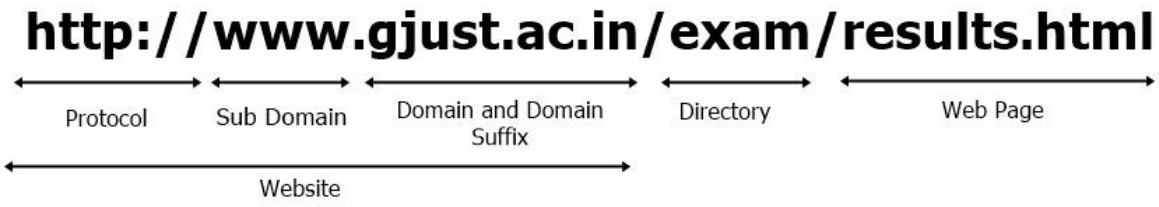
Viewing a web page requires a browser, like Internet Explorer, Edge, Safari, Firefox, or Chrome, Dolphin. Once you are into a browser, you can open a web page by entering the URL in the address bar. For example, typing "*http://www.gjust.ac.in/exam/results.html*" (or copying and pasting) opens the *Guru Jambheshwar University*'s result page. If you don't know the URL of the site you'd like to visit, you can use a search engine to find it.

When was the first web page created?

The first web page was created at CERN by Tim Berners-Lee on August 6, 1991. You can visit and browse the first website and the first web page at the "http://info.cern.ch" address.

9.3 DIFFERENCE BETWEEN A WEBSITE AND WEB PAGE

A website refers to a central location that contains more than one web page. For example,www.gjust.ac.in is considered a website, which includes thousands of different web pages of Guru Jambheshwar University.



In the example URL above, the web page is "results.html" and is always the last part of the URL. For URLs not having an ending of .htm, .html, .php, .cgi, .pl, or another file extension, the server loads the default index.htm web page in that directory.

Examples of a web page

The URL we used as example, of differentiating between website and Web Page, is an example of a web page. It comprises several web technologies, including HTML, CSS, and JavaScript.

Although the web page body is created using HTML, that HTML code can be created using an HTML editor and written by a human or generated using server-side scripts or other scripts. A web page created by a human often ends with a .htm or .html file extension and known as a static web page. For example, this page uses "result.html" as its file name.

Dynamic web pages generated by a script can end in .cgi, .php, .pl, and other extensions depending on the language generating the page.

What can you do on a web page?

On most websites, you feed or read the information contained on the page, and if there are any interesting hyperlinks, you follow those links to find more information or perform a task. You can also listen to music, watch videos, shop, communicate, and much more on many websites.

9.4 BASIC COMPONENTS OF A WEBPAGE

The basic components of designing of a web page are used in form of images, text, audio, video, graphics, animations and other multimedia content interacting with Internet users. These components are used to draw the content on webpage. But there are some more following components that used to structure a webpage:

List of homepage component:

1. Header.
2. Navigation.
3. Logo.
4. Menu items.
5. Hero image /slider.
6. Text matter.
7. Service offer.
8. Service list
9. Showcase of portfolio items.
10. Footer.
11. Contact details in footer.

List of components of about page:

1. Header.
2. Navigation.
3. Menu item.
4. Author image.
5. Author information / skill set.

6. Author portfolio showcase.
7. Author Achievement.
8. Author credibility and Authority (Important).
9. Footer same as home page.

List of components of contact page.

1. Header / Navigation / logo / menu item and footer same as home page.
2. Contact address.
3. Contact Number.
4. Contact Form.
5. Location in Map.

Privacy Policy and Term and Condition page.

1. Header / Navigation / logo / menu item and footer same as home page.
2. List of privacy policy and term and condition.

List of some Design guide / style HTML Element for all html pages.

1. Typography (Paragraph, heading tags and all form of text on pages).
2. Optimize Images (Make sure you have high image quality and same color scheme in all images).
3. Form Elements.
4. Colour scheme for website.
5. Proximity (White space between element - Important).

Example ofcomponents of a web page?

Every web page is different. However, most pages contain some or all of the components contained on following web page. Below is an overview of the major components of a web page.

1. The website, blog name, logo, or company name is often in the top-left corner or top-middle of each web page. The logo may also include a slogan or brief statement about the site to give visitors an instant understanding of the site. Also, this section of the web page is usually a link that may link back to the homepage.
2. Social share links allow visitors to share your site with other co-workers, friends, and family on social networking sites.
3. Additional information and tools such as a language change button, print the page can also be helpful for users on most web pages.
4. The navigation bar, or menu for a web page, is often found on the top or left side of each web page. It should include links to each of the major sections of the website. It is also often including CSS (Cascading Style Sheets) and JavaScript. This document usually can be accessed by entering its URL address into a browser.
5. Webpages and websites with announcement provide this area. Where announcements and notifications flashes for latest updates. These areas works as beacon and broadcast news.

6. The Copyright and any legal or privacy notice should also be on all web pages. Not only can this link to relevant legal information it is an indication for most visitors that they have reached the end of the web page.
7. An information providing webpage have hyperlinks and quick links. So that a user didn't have to go through cascade menu and can directly go to desired webpage. Not every single user knows the categories of cascade menu. Quick links help them to reach a webpage. Contact us, Feedback forms, support, help desk links can be found under them sometimes or at the end of page.
8. Most of academic, business, shopping, webpages show their working, achievements, Infrastructure, Products, latest events or whatever they want to show on there page as Images or video formats. These photos/video gallery makes a webpage lucrative and elaborate.
9. Search bar: The search allows a visitor to search a website for related information and should be available on every page.
10. Advertisement: Advertisement banners can be shown in different places on a web page and help pay for the expenses of running a website and company. Ad banners are

often found at the top, left, right, or bottom of a page and may also be included in the content.

11. Feedback: Having a method of allowing a visitor to provide feedback is also a requirement for most web pages. Giving the visitor links or buttons to click for feedback is a good step to let you know if a web page is helpful or not.
12. Back to top: Finally, a "back to the top" button or link at the bottom of the page helps the visitor return to the menu links or other tools.

9.5 DEVELOPMENT OF WEB PAGE

Development of a web page is generally referred as web development in a broad scenario. Web development refers to building, creating, and maintaining websites. It includes aspects such as web design, web publishing, web programming, and database management.

While the terms "web developer" and "web designer" are often used synonymously, they do not mean the same thing. Technically, a web designer only designs website interfaces using HTML and CSS. A web developer may be involved in designing a website, but may also write web scripts in languages such as PHP and ASP. Additionally, a web developer may help maintain and update a database used by a dynamic website.

Web development includes many types of web content creation. Some examples include hand coding web pages in a text editor, building a website in a program like Dreamweaver, and updating a blog via a blogging website. In recent years, content management systems like WordPress, Drupal, and Joomla have also become popular means of web development. These tools make it easy for anyone to create and edit their own website using a web-based interface.

While there are several methods of creating web pages, there is often a trade-off between simplicity and customization. Therefore, most large businesses do not use content management systems, but instead have a dedicated Web development team that designs and maintains the company's website(s). Small organizations and individuals are more likely to choose a solution like WordPress that provides a basic website template and simplified editing tools.

What are the essential things to develop a webpage and tools used by professionals?

An idea is the most essential thing to develop a web page. If you are going to do something then you must have an idea of what are you going to do. That's the most primary thing you do to develop web page. Get an idea, draw a plot, format your layout and move to next part of development.

A computer is the second essential thing. Some of you might find this funny but time has it, almost everything is being done on smart phones. You are reading it on book or a mobile device then it's the pretty obvious to get a computer for web development. For serious web development, it's betterto invest in a desktop or laptop computer running Windows, macOS or Linux.

HTML (Hypertext Mark-up Language) is the primary building block of creating a website.HTML is a very basic mark-up language and requires memorization of a few dozen HTML commands that structure the look and layout of a web page. Before writing any HTML code or designing your first web page, you must decide on an HTML editor or text editor, such as Notepad or WordPad. After installing an HTML editor and are ready to begin setting up your website, think about how you want the site to look and be set up. Consider even drawing out your ideas, to help visualize the site and pages on the site. Below are some considerations to think about when designing your web page.

1. How are you going to store all the files? Are all the files going to be in the same folder or directory? If you plan on having lots of different pictures and files, its recommended you store the pages, files, and pictures in separate directories.

2. Are the HTML files going to be stored as .HTM or .HTML files? There is no advantage or disadvantage of going with.html. However, it is a good idea to stick with the same extension.

3. Do you plan on having a template for the pages? Are all the pages going to have the same overall look and feel?

4. How is the navigation going to be handled? Do you feel its better for the navigation menu to be on the left, bottom, or top of each page?

A text editor, to write code in. This could be a text editor (e.g. Visual Studio Code, Notepad++, Sublime Text, Atom, GNU Emacs, or VIM), or a hybrid editor (e.g. Dreamweaver or WebStorm). Office document editors are not suitable for this use, as they rely on hidden elements that interfere with the rendering engines used by web browsers.

Web browsers, to test code in. Currently, the most-used browsers are Firefox, Chrome, Opera, Safari, Internet Explorer and Microsoft Edge. You should also test how your site performs on mobile devices and on any old browsers your target audience may still be using (such as IE 8–10.) Lynx, a text-based terminal web browser, is great for seeing how your site is experienced by visually-impaired users.

A graphics editor, like GIMP, Paint.NET, Photoshop, or XD, to make images or graphics for your web pages.

A version control system, to manage files on servers, collaborate on a project with a team, share code and assets and avoid editing conflicts. Right now, Git is the most popular version control system along with the GitHub or GitLab hosting service.

FTP program, used on older web hosting accounts to manage files on servers (Git is increasingly replacing FTP for this purpose). There are loads of (S)FTP programs available including Cyber duck, Fetch and FileZilla.

An automation system, like Webpack, Grunt, or Gulp to automatically perform repetitive tasks, such as minifying code and running tests.

9.6 CHECK YOUR PROGRESS

Note: 1) Use the space below for your answers.

2) Compare your answers with those given at the end of this lesson.

CHOOSE THE RIGHT OPTION.

1. **What is a CMS in web design?**
   a) Content Management System
   b) Creative Management System
   c) Content Mixing System
   d) Creatives Managerial System

2. **What do you understand by WordPress?**
   a) Software used to press text
   b) Text formatting software
   c) CMS (Content Management System)
   d) Mail service

3. **Which of the following softwares could be used to build a website**

a) Power Point
b) Excel
c) Dream Weaver
d) ERP

4. Which is the most widely used email form script?

a) ASP
b) PHP
c) JSP
d) Perl CGI

9.7 SUMMARY

- A web page is often used to provide information to viewers, including pictures or videos to help illustrate important topics. A web page may also be used as a method to sell products or services to viewers. A website refers to a central location that contains more than one web page.
- Web page body is created using HTML, that HTML code can be created using an HTML editor and written by a human or generated using server-side scripts or other scripts. A web page created by a human often ends with a .htm or .html file extension and known as a static web page
- The terms "web developer" and "web designer" are often used synonymously, they do not mean the same thing. Technically, a web designer only designs website interfaces using HTML and CSS. A web developer may be involved in designing a website, but may also write web scripts in languages such as PHP and ASP.

9.8 KEYWORDS

HTML- Hyper Text mark-up language.

CSS- Cascading style sheet.

DBMS- Database Management System.

XLM- Extensive Mark-up language.

CMS- Content Management System.

9.9 SELF-ASSESSMENT TEST

1. What do you understand by web page?
2. Write about the content development of websites?
3. Write two characteristics of a web page?
4. Discuss about the any websites page that you like most on it ?

5. How colour scheme is important to design a web page?

9.10 ANSWERS TO CHECK YOUR PROGRESS

1. a)Content Management System
2. c) CMS (Content Management System)
3. c) Dream Weaver
4. b) PHP

9.11 REFERENCES/SUGGESTED READINGS

1. Tom Brinck, John Bunyan et al. (2002). Designing Web Sites that Work: Usability for the Web: Academic press.
2. NicolaeSfetcu (2006) Web Design & Development.
3. Gary B. Shelly, Denise M. Woods, William J. Dorin (2009) HTML: Comprehensive Concepts and Techniques : CENGAGE LEARNING
4. http://www.gjust.ac.in/